

GOVERNMENT OF BIHAR DEPARTMENT OF LABOUR AND EMPLOYMENT

REPORT

OF

THE BIHAR UNEMPLOYMENT COMMITTEE

1960

VOLUME I

विकासिक जायन

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BIHAR UNEMPLOYMENT COMMITTEE.

FROM

SHRI R. S. PANDE, I.A.S.,
SECRETARY, BIHAR UNEMPLOYMENT COMMITTEE,

To

THE SECRETARY TO THE GOVERNMENT OF BIHAR, DEPARTMENT OF LABOUR AND EMPLOYMENT, PATNA.

Dated, Patna, the 21st April, 1960.

DEAR SIR,

I BEG to submit this Report of the Bihar Unemployment Committee for the consideration of Government.

Yours faithfully,

R. S. PANDE.

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No. III/E2-1048/53-L-I

GOVERNMENT OF BIHAR.

LABOUR DEPARTMENT.

RESOLUTION

The 1st January, 1954

In pursuance of the recommendations made by the Bihar Central Labour Advisory Board at its eleventh session held at Patna on the 11th and 12th April, 1953 and the resolution adopted by the Bihar Legislative Assembly on the 8th October, 1953, the Government of Bihar are pleased to appoint a Committee consisting of persons named below, to enquire into and report on the causes of the present state of unemployment in the State and to advise Government about the ways and means to remedy the situation. The Committee may deal with the problem in all its aspects, namely, industrial unemployment, urban unemployment, rural unemployment and agricultural unemployment with particular emphasis on unemployment amongst the educated persons.

PERSONNEL OF THE COMMITTEE.

Chairman.

(1) Dr. A. N. Sinha, Minister for Labour, Bihar.

Members.

- (2) Mr. L. P. Singh, I.c.s., Chief Secretary to the Government of Bihar.
- (3) Mr. K. S. V. Raman, I.c.s., Food Production and Development Commissioner, Bihar.
- (4) Mr. B. N. Rohatgi, I.A.S., Secretary to the Government of Bihar, Development Department.
- (5) Mr. J. C. Mathur, i.c.s., Secretary to the Government of Bihar, Education Department.
- (6) Mr. T. P. Singh, i.c.s., Secretary to the Government of Bihar, Public Works Department.
- (7) Mr. Sachchidanand Singh, Secretary to the Government of Bihar, Finance Department.
- (8) Mr. R. S. Pande, I.A.S., Secretary to the Government of Bihar, Labour Department—Member-Secretary.
- (9) Mr. V. K. N. Menon, Vice-Chancellor, Patna University.
- (10) Mr. S. N. Sahay, M.P., Vice-Chancellor, Bihar University.
- (11) Mr. Shanti Prasad Jain, President, Bihar Chamber of Commerce.
- (12) Mr. Gauri Shanker Dalmia, M.L.C., Jasidih, Santhal Parganas.
- (13) Mr. S. M. Dhar, Deputy Agent, Tata Iron and Steel Company, Ltd., Jamshedpur.
- (14) Mr. M. John, President of the I.N.T.U.C.
- (15) Mr. Basawan Singh, M.L.A., President, Hind Mazdoor Sabha, Bihar Branch, Patna.

- (16) Mr. Binodanand Jha, M.L.A.
- (17) Mr. Sidui Hembrom, M.L.A.
- (18) Mr. Chandrashekhar Singh, M.L.A.
- (19) Mr. R. Narsingh Rao, M.L.C.
- (20) Dr. B.R. Mishra, Dean of the Faculty of Commerce, Patna University.
- (21) Mr. Gorakh Nath Sinha, Retired Director of Public Instruction.
- (22) Mr. S.R. Bose, Director of Central Bureau of Economics and Statistics, Bihar.
- 2. The Committee will have powers to co-opt such members as it considers necessary.
- 3. The Committee is requested to present to Government its report in this regard at an early date.

ORDER.—Ordered that a copy of the resolution be published in the Bihar Gazette and copies forwarded to all concerned.

By order of the Governor of Bihar, B. P. SINHA,

Under-Secretary to Government.

Note.—On the death of Dr. A. N. Sinha, Shri B. N. Jha, Minister for Labour was appointed to be the Chairman of the Committee in 1957. Sri M. S. Rao succeded Sri L. P. Singh when the latter went to the Government of India. On the appointment of Sri K. S. V. Raman as the Chairman of the Bihar Public Service Commission Sri B. D. Pande, Development Commissioner, was appointed in his place. Sri B. N. Rohatgi was first succeeded by Sri Ranchor Prasad, and later, when the Development bifurcated into two departments, the membership of the Department Thakur, Secretary of Agriculture Committee was increased by one, and Sri H. N. and Animal Husbandry Department and Sri B. N. Sinha, Sccretary of Industries and Co-operation Department were appointed. Sri J. C. Mathur was succeeded by Sri K. Abraham who gave place to Sri Saran Singh, as the Secretary of the Education Department. Sri T. P. Singh was succeeded by Sri M. R. Hoda as the Secretary of Public Works Department. Towards the end of 1959, Sri S. N. Singh was succeeded by Sri S. Dutt as the Finance Secretary. Even after leaving the Labour Department in 1954, Sri R. S. Pande continued to be the Member-Secretary. Sri V. K. N. Menon was succeeded by Dr. B. Narayan and then by Dr. Balbhadra Prasad as the vice-Chancellor of the Patna University. On the death of Sri S. N. Sahay, Dr. Dukhan Ram, Vice-Chancellor of the Bihar University was appointed in his place. Sri S. M. Dhar retired from the services of the Tata Iron and Steel Company, Limited, in April, 1959, but his place was not filled up. Sri S. M. Acquil, Deputy Minister, Labour, was appointed as a member of the Committee when Sri B. N. Jha, Labour Minister, became the Chairman, Sri Sidui Hembrom was succeeded by Sri Ignes Kujur. Sri S. R. Bose continued to be a member of the Committee even after his retirement from the post of the Director of Central Bureau of Economics and Statistics. Dr. D. N. Lal was appointed additional member when he assumed charge of the office of the Director of Central Bureau of Economics and Statistics. He was later succeded by Sri R. B. Lal.

- 2. By subsequent notifications the following members were appointed as additional members of the Committee :—
 - (1) Sri Bir Chand Patel, Deputy Minister, Labour and Agriculture (now Minister for Agriculture, Supply and Commerce and Health)—Vice-Chairman,

- (2) Sri B. P. Singh, I.A.S., Commissioner of Labour, Bihar (now Secretary to Government of Bihar, Labour and Employment Department).
- (3) Sri S. N. Pande, I.A.S., Commissioner of Labour, Bihar.
- (4) Sri R. S. Mandal, I.A.S., Additional Director of Industries, Bihar (now Director of Industries).
- (5) Sri R. N. Panday, State Director, National Employment Service.
- (6) Sri Brajanandan Prasad, M.L.C.
- (7) Sri Bishundeo Narain Singh, Retired Member, Bihar Public Service Commission.
- (8) Sri Dhwaja Prasad Sahu, Member, Bihar State Khadi and Village Industries Board, Patna.
- (9) Sri Gajanan Das, Secretary, Bihar Khadi Gramodyog Sangh, Muzaffarpur.
- (10) Sri Harnandan Prasad, Deputy Secretary, Finance Department—Member-Joint Secretary.
- 3. At the time of the signing of the report the membership of the Committee stood as follows:—

Chairman.

(1) Sri B. N. Jha, Minister for Labour, Revenue and Gram Panchayat.

Vice-Chairman.

(2) Sri B. C. Patel, Minister for Agriculture, Supply and Commerce and Health.

Members.

- (3) Sri M. S. Rao, I.c.s., Chief Secretary.
- (4) Sri B. D. Pande, I.c.s., Development Commissioner.
- (5) Sri B. P. Singh, I.A.S., Secretary, Labour and Employment Department.
- (6) Sri H. N. Thakur, I.A.S., Secretary, Agriculture and Animal Husbandry Department.
- (7) Sri B. N. Sinha, I.A.S., Secretary, Industries, Co-operation and Mines Department.
- (8) Sri S. Singh, I.A.S., Secretary, Education Department.
- (9) Sri M. R. Hoda, I.A.S., Secretary, Public Works Department.
- (10) Sri S. Dutt, I.A.S., Secretary, Finance Department.
- (11) Sri S. N. Pande, I.A.S., Commissioner of Labour.
- (12) Sri R. S. Mandal, I.A.S., Director of Industries.
- (13) Sri R.B. Lal, I.A.S., Director of the Central Bureau of Economics and Statistics.
- (14) Sri R. N. Panday, State Director, National Employment Service.
- (15) Dr. B. Prasad, Vice-Chancellor, Patna University.
- (16) Dr. D. Ram, Vice-Chancellor, Bihar University.
- (17) Sri Bishundeo Narain Singh, Retired Member of the Bihar Public Service Commission.
- (18) Sri Shanti Prasad Jain, 11, Clive Row, Calcutta-1.
- (19) Dr. B. R. Misra, Dean of the Faculty of Commerce, Patna University.
- (20) Sri S. R. Bose, Retired Director of Central Bureau of Economics and Statistics.

- (21) Sri M. John, M.P., President, Indian National Trade Union Congress, Bihar, Jamshedpur.
- (22) Sri Basawan Singh, M.L.A., President, Hind Mazdoor Sabha, Bihar, Patna.
- (23) Sri Ignes Kujur, M.L.A.
- (24) Sri Chandrashekhar Singh, M.L.A.
- (25) Sri Brajanandan Prasad, M.L.C.
- (26) Sri Gouri Shankar Dalmia, M.L.C.
- (27) Sri R. Narsingh Rao.
- (28) Sri Dhwaja Prasad Sahu, Member, Bihar State Khadi and Village Industries Board.
- (29) Sri Gajanan Das, Secretary, Bihar Khadi and Gramodyog Sangh, Muzaffarpur.
- (30) Sri R.S. Pande, I.A.S., Agent, Tata Iron and Steel Company, Limited—Member-Secretary.
- (31) Sri Gorakhnath Sinha, Member, Railway Rates Tribunal, Madras—Member-Additional Secretary.
- (32) Sri Harnandan Prasad, I.A.S., Deputy Secretary, Finance Department-Member-Joint Secretary.

यस्य प्रदेश सम्ब

INTRODUCTION.

1. Constitution of the Bihar Unemployment Committee, its terms of reference and personnel.—The problem of unemployment was acute in 1952-53. The question came up for discussion at the 11th meeting of the Bihar Central (Standing) Labour Advisory Board held on the 11th and 12th April, 1953, and the Board decided to recommend to Government to constitute an all inclusive and comprehensive Committee to examine the problem of unemployment in the State and to make recommendations.

On the 8th October, 1953, the Bihar Legislative Assembly passed the following non-official Resolution moved by Shri Chandrashekhar Singh, M. L. A.:—

"This Assembly recommends to the State Government to appoint a Committee to enquire into and report on the causes of the present state of unemployment in the State and suggest ways and means to remedy the situation"

Accordingly, the State Government were pleased to constitute the Bihar Unemployment Committee on the 1st January, 1954, with Dr. A. N. Sinha, the then Labour Minister, as the Chairman and Shri R. S. Pande, f. A. s., the then Labour Secretary, as the Member-Secretary. A copy of the Government resolution constituting the Committee with the terms of reference has already been given in the beginning of the Report.

- 2. Sub-Committees of the Main Committee.—On the 13th February, 1954, the following four Sub-Committees were appointed:—
 - (1) Industrial Unemployment Sub-Committee;
 - (2) Small-scale and Cottage Industries Unemployment Sub-Committee;
 - (3) Agricultural and Rural Unemployment Sub-Committee; and
 - (4) Educated Unemployment Sub-Committee.

A Copy of the orders passed by the Chairman of the Committee appointing the four Sub-Committees will be found in the Appendices which are being published separately in volume II of this Report.

3. SAMPLE SURVEYS OF URBAN AS WILL AS RURAL UNEMPLOYMENT.

At the very first meeting of the Main Committee, it was noticed that there were not enough dependable data and statistics to enable the Committee to have a clear and comprehensive picture of the problems before it. The Committee, therefore, decided to undertake a sample survey of urban unemployment, and another survey of agricultural and rural employment and unemployment, besides conducting a number of ad hoc enquiries and surveys to fill up the gap in the information. Shri S. R. Bose, the then Director of the Central Burcau of Economics and Statistics, who was entrusted with the task of formulating a suitable scheme of investigations, prepared a note containing the design, the questionnaire and the method of conducting the surveys, which is being published separately in volume II of this Report.

3.1. Urban Unemployment Survey.—The Urban Unemployment Survey was conducted in 1954, in 15 towns in the State. The towns covered were Patna, Ranchi and Bhagalpur (Class I towns with population of one lakh and above), Muzaffarpur, Chapra and Arrah (Class II towns with population of over 50,000 to one lakh), and Motihari, Madhubani, Jamalpur, Purnea, Deoghar, Hazaribagh, Purulia, Dhanbad and Giridih (Class III towns with population of over 20,000 to 50,000).

- 3.2. Other studies and enquiries.—In addition, the Industrial Sub-Committee conducted the following surveys and enquiries by post:—
 - (i) Survey of 10 per cent of the registered factories with a view to finding out the extent of unemployment in different classes of industry.
 - (ii) Survey of all factories and mines employing 500 and more workers regarding employment of the people of the State in different categories, training facilities available, and other allied matters.
 - (iii) Enquiry regarding closure of factories and workers involved in such closures.
 - (iv) Enquiry for cliciting the opinions of employers' associations on the question of starting new units in the State and increasing the capacities of the existing ones.

The Educated Unemployment Sub-Committee made the following studies:-

- (i) Analysis of the data relating to the number of posts advertised and applications received by the Bihar Public Service Commission.
- (ii) Analysis of the figures of admissions in different colleges in the State.
- (iii) Analysis of applications received for non-gazetted posts advertised by the different departments of the State Government.

The Small-scale and Cottage Industries Unemployment Sub-Committee also conducted a postal survey of small factories engaged in rice and oil industries and in iron and steel fabrication to ascertain the position of employment in these establishments.

A detailed study of the Sabai grass cultivation in the Santhal Parganas District was also made which is being published along with the reports of the Sub-Committees.

3.3. Rural Unemployment Survey.—But the most difficult and time consuming work undertaken by the Committee was to start on a project for the comprehensive study of the problem of employment, unemployment and under-employment in agricultural and rural sector. The Agricultural and Rural Unemployment Sub-Committee undertook a very ambitious survey in a manner in which, to our knowledge, it has not so far been attempted anywhere in the country. Under this scheme, 357 villages were selected in the whole State, on the basis of stratified random sampling, and a comprehensive socio-economic survey was instituted in each of the villages for the study of each family residing in the village, continuously for each week of the year with a view to finding out trends and fluctuations in employment, unemployment and other socioeconomic conditions of the family. Though the scheme was finalised in 1954 it took about a year in working out the details of the survey, and in getting the trained personnel for the work. The task of selecting local investigators who could be relied upon to send the required reports regularly, week after week, was also found to be extremely difficult. The services of the primary school teachers and village panchayat agencies were, therefore, enlisted for this work. But in spite of our best efforts, not much progress could be made till 1955-56. The work, however, gathered momentum in 1956-57 and the survey work could be completed only by March, 1959. It may be mentioned that due to a variety of reasons, a number of sample villages had to be dropped out ultimately, and, in all, only 238 villages could be surveyed completely in all respects. All the village schedules from these 238 villages, and all the family schedules numbering 38,871, have been tabulated and analysed and broad results emerging from these schedules on zonal basis are being incorporated in Chapter VII of this Report. About 40 per cent of the tabulation and analysis of the weekly cmplayment schedules, which gives figures of available mandays and mandays employed in different industries for each family, has also been completed. But the rest of the

work of tabulation is still in progress. The Committee, however, felt that its Report has already been delayed on account of this survey, and it could not be held up any longer without the risk of the value of the recommendations made by the Committee being lost merely for the reason of the delay in the publication of the Report. It is for this reason that the Committee has recommended, at a subsequent place, that the work should be continued by the proposed permanent State Committee on Employment which should complete the work so that the valuable data collected after so much labour and expense are usefully utilised.

Not only this. The pattern of rural economy shows considerable diversity to the extent it is related to urban and industrial areas, and it varies very greatly according to geographical conditions. On account of diversity of these conditions in the rural areas, it was realised that statistical inferences could not be wholly relied upon for framing policies for stimulating employment. The conditions prevailing in different zones and sub-zones require different measures to be adopted. It was thought that even zonal studies would require to be supplemented by case and type studies to bring out the salient features of the rural economy, particularly those relating to employment and unemployment. Eight case and type studies were, therefore, prepared, and the summary of employment and unemployment trends noticed in these studies have been incorporated in Chapter VIII of this Report.

4. Final reports of the Sub-Committee.—The Small-scale and Cottage Industries Unemployment Sub-Committee, the Educated Unemployment Sub-Committee and the Industrial Unemployment Sub-Committee submitted their final reports on the 20th February, 1959, 9th April, 1959, and 20th April, 1959, respectively. All these reports were considered by the Main Committee at its 6th meeting held on the 21st April, 1959. The Small-scale and Cottage Industries Unemployment Sub-Committee, however, elaborated its report further in the light of the directions of the Main Committee, and submitted another report on the 13th May, 1959.

We regret to note that the analysis of data collected by the Agricultural and Rural Unemployment Sub-Committee has not yet been completed, and, therefore, this Sub-Committee has not been able to finalise its report. The Main Committee has, however, had the advantage of a report prepared by the office on the basis of the case studies of eight sample villages in the light of which it has ventured to make certain recommendations in this regard in the Report, which might be of some use.

5. Meetings of the Main Committee.—The Bihar Unemployment Committee held nine meetings on the following dates:—

17th January, 1954. 1st meeting 3rd April, 1954. 2nd meeting 24th May, 1954. and 25th May, 3rd meeting 1954. 12th and 13th August, 1956. 4th meeting 5th February, 1959. 5th meeting 21st April, 1959. 6th meeting 3rd and 4th December, 1959. 7th meeting 22nd February, 1960. 8th meeting 21st April, 1960. 9th meeting

A detailed note on each of the meetings of the Committee will be found in Appendices.

India, Dr. M. N. Saha, M.P., Shri B. K. Gokhale, I.C.S. (Retd.), formerly Secretary, Ministry of Works, Mines and Power, Shri C. C. Desai, I.C.S., till lately Secretary, Ministry of Works, Housing and Supply, Shri A. N. Khosla, I.S.E., Additional Secretary, Ministry of Irrigation and Power, Shri A. D. Gorwala, I.C.S. (Retd.), Shri D. L. Mazumdar, I.C.S., formerly Joint Secretary in the Ministry of Works, Mines and Power, Shri N. M. Buch, I.C.S., Director General of Supplies and Disposals, Shri A. R. Venkatachari, I.S.E. (Retd.), Member of the D.V.C. Board of Consultants, Shri S. Ratnam, Joint Secretary, Ministry of Finance, Sardar Man Singh, I.S.E., and officers of the Central Water and Power Commission. Discussions were also held with the representatives of the Associated Exports Imports Corporation and the Engineering Association of India regarding the purchase policy and procedure of the Corporation. A list of the witnesses examined appears in Appendix IV.

Period of Enquiry

11. The Committee were originally required to submit their report within two months of their formation, i.e., by the 11th December, 1952, but as we had to make arrangements even for our office accommodation, staff, etc., we took some time to settle down to work. The collection of the very large number of relevant records from the Ministry of Irrigation and Power and from the Corporation also took time. Examination of witnesses, who lived in different parts of the country, could not be arranged on the desired dates. The evidence had to be shifted and analysed and separate questionnaire had to be prepared for the more important witneses who in some cases took considerable time to submit replies. In addition, we had to tour various parts of the country. Shri B. N. Lokur, one of our members, was also on the Commodity Control Committee, and had to be away off and on in connection with his duties on that Committee. With effect from the 10th March, 1953, the Chairman was appointed to bein sole charge of the PEPSU administration as Adviser to the Rajpramukh, in addition to his duties, and was, therefore, unable to devote more than a few hours a day to the work of the Committee. Add to these, the inherent technical and other complexities of the enquiry. We were thus unable to complete our work before the end of May, 1953, but all the members except the Member-Secretary were allowed to join their normal duties on the 1st May, 1953.

Plan of the Report

12. This report is divided into eleven chapters. The first is introductory and deals with appointment of the Committee, other formal

CHAPTER I.

- Theory of Employment and Unemployment—Meaning and Measurement of Unemployment—Economic and Social Consequences of Unemployment—Growth of Awareness of the Problem of Unemployment.
- 1. Introduction—The primary task of the Committee is to examine the situation of unemployment, find out the factors explaining it and recommend short-term remedial measures as well as long-term policies for providing employment for the whole of the work force. It is necessary, therefore, to examine and analyse the pattern of a representative economy with production measured in terms of national income as the direct objective or function of a set of variables in which employment is the dominant co-partner and determinant along with capital appliances. In a broad sense employment is equivalent to the entire metabolic process of the economy in which all the factors of production, both human and material, are employed fully and provide for sustenance as well as for growth. The factors, the employment of which we consider, are the installed capacity of the material instruments of production including the capital sunk in the natural endowments above and below the surface of the carth human efforts. manual or mental. We may look upon all the natural or man-made material resources for production as the fruits of past employment for rendering present and future employment more productive than if they were absent or deficient and thus concentrate our attention on the human factor.
- 2. Methodological justification for considering the employment of the work force as the immediate determinant of production.—While economic resources are concrete things, economic relations, ultimately based on human motivation and value judgments by individuals, singly or through compounded decisions of the market or of fiduciaries like the state, are abstract. In dealing with abstract entities and complex relationships, therefore, a certain amount of methodological simplification is necessary. Proceeding by this method of simplification, we take all the other variables in the economy, which we shall be analysing soon, as parameters or fixed data and then proceed to measure production and productivity in terms of units of human efforts and employment. This method has also got the ethical justification of treating man as the centre of our interest because man is both the means as well as the end of all economic efforts.
- 3. The margin of surplus over the resources required for current needs is the basis of all economic progress.—Another important concept has got to be formulated at this stage. We shall very soon be emphasising the mutual inter-dependence or implicit functions of employment and economic growth. It can be easily realised that individual producers in a primitive economy had to produce a quantity in addition to what they consumed themselves immediately in order to enable themselves or others to subsist and manufacture the appliances of production to make labour more productive. Thus the production of a surplus, or even the creation of a surplus by stinting, is absolutely necessary for economic progress. Throughout the history of mankind, spurts of progress have depended on the creation of this surplus of agriculture in the favoured regions of the earth, on chance discoveries and inventions, or on a squeeze, exploitation or taxation by the State efforcing this stinting for obtaining resources for the construction of large utilitarian works or monuments like the canals of the Nile and the Tigris Valleys, the Roman roads, the Pyramids, and so on. In the modern era of technology and capitalist production, saving out of the current resources has got to be a normal recurring process, like current con-

sumption itself, for the purpose of providing labour-aiding appliances for the growing labour force and for a continuous improvement of the standard of life.

The second function of surplus is to bring into existence a monetised, commercialised and integrated economy which is necessary for creating the market economy in which the productive efforts or labour of each becomes the employment generating force for the others. We shall be frequently using the concept of employment generating employment or of multiplier effects and self-propagating force of an initial quantum of employment. This phenomenon is possible only if the economy is monetised through the circulation of a marketable surplus in the economy. At a later stage we have applied this concept for recommending that even though our efforts to improve the subsistence farming of our rural economy may lead to better conditions of nutrition as an immediate and a limited result, agriculture cannot impart due share of stimuli to the economy unless it is able to increase its marketable surplus and expand the demand for the products of the other sectors.

- 4. Increase in the productive capacity of labour with the aid of appliances.—The productive capacity of human labour has gone on increasing since the very dawn of man's life through increasing knowledge and the use of materials and external energy. These factors have been the determinants of the growth of material civilisation. The discovery of and control of fire as the earliest source of energy, the energy charged in a bow and that harnessed by the potter's wheel, the domestication of animals, the power of wind and flowing water, and so on were the important land-marks in the history of economic growth before the revolution of the steam age. Throughout all these ages the inventions for harnessing and generating energy have gone hand in hand with the invention of simple or more elaborate mechanical devices for utilising all these sources of energy and the discovery of the use of agricultural, animal and mineral resources. They constituted the innovations which later on became the foundations of technology when their nature began to be unravelled to start the growth of organised knowledge or science. All these developments have moved along uneven lines; and their imbalances provided the quest for further innovations. Their results have tended to take the form of the discovery of new materials, inventions to aid the work energy of the puny arms of man or to magnify the capacity of his senses and the skill of his fingers, finally, of producing an increasing variety of goods and services. In these ways the productive capacity of man has gone on increasing and creating a continuously increasing demand for the employment of labour and for saving and investment.
- 5. Measurement of increase in the productivity of labour.—We have noted how increase in employment and productivity is self-propagating. So a measurement or even a broad indication of the trend of productivity would be a useful indicator of growth in employment. The variables determining the productivity of labour are, however, so many and so varied that no common denominator or index can be found for them except in terms of their money value. This, however, is not very satisfactory and would amount merely to a co-efficient of the input-output function in terms of money. A rough and convenient standard is provided by the unit of mechanical energy consumed on average per head of the working population in the organised industries. The other method would be to trace directly the growth of productivity per head of the work force per hour in terms of a constant value monetary unit.

The work energy of an average adult without the aid of any mechanical device has been rated only at about one-tenth to one-eighth of a horse-power. But man has been an instrument-using animal from the very beginning. To-day the most common term of energy is electricity. Taking one kilowatt hour to be equivalent to one and one-third of a horse-power hour, we find that the increase in the industrial

consumption of electrical energy from year to year itself would be a fair indication of the progress of productivity of labour. It is also a fair standard for comparing how income per head of the population may vary between a developed and an undeveloped country. The following statement brings out this functional relationships between mechanical energy and productivity in the U.S.A. over a century:—

TABLE 1

Year.			Constituents	of work en centages		Value of goods -produced per	
1ear.			Man.	Animal	Mecha- nical.	man-hour in Dollars.	
	1		2	3	4	5	
1850			15	79	6	0.27	
1900	••	• •	10	52	38	0.56	
1930	• •		4	12	84	0.86	
1960 (e	stim at e)	••	3		96	1.62	

- 6. THE FACTORS OR VARIABLES OF AN ECONOMY: THEIR CIRCUMFLUENCE OR CIRCULAR FLOW WHILE SUSTAINING THE ECONOMY IN EQUILIBRIUM AND THEIR SPIRALWHEN THE ECONOMY IS IN GROWTH.
- 6.1. The factors or variables of an economy.—All social and economic factors and forces ultimately work through individual motivation. But when we analyse the working of an economy as a whole, whether as an intellectual persuit, or for prescribing some norms, or for framing policy we formulate these variables as aggregates which are technically termed as macrovariables. Any economic policy aims at controlling and guiding them even though they or their functioning may not be completely under human control. These aggregative variables of the economy may be initially distributed among the following broad categories standing in a relationship of circular flow:—
 - (1) Employment.
 - (2) Production.
 - (3) National income.
 - (4) Income uses.

All these factors are called variables because they can be expressed in quantities, and variations in them lead to variations in their functions or the effects they give rise to. Thus, other things being equal, the volume of employment determines immediately the volume of production. This in its term determines the amount of national income. The level of national income in its turn, determines the level of spending on which the volume of employment depends.

In this analysis economists do not now use the terms cause and effect because they hold that the cause of any effect can be back-tracked indefinitely and an effect also is not generally terminable whereas they are concerned with the series of direct and immediate sequences before entering into complex relationships.

6.2. The complex structure of the variables.—But each of these variables is a complex structure within itself. Hence each one has got to be resolved into its components for detailed economic analysis and appropriate policy-framing for furthering the objectives of the economy or of any technical and managerial unit. We can hardly go into all such details, but some illustrations would be justified to make the point clear.

Thus, consumption or spending, which is the immediate variable of the employment function, is made up of consumer expenditure on the daily requirements or on durable consumer goods, of saving, of hoarding and of investment in productive material resources consisting of instrumental goods as well as inventory. Each of these components is subject to its own specific variables apart from depending on the main variable. Thus the volume or level of employment and the structure of employment both depend on the amount of net national income as well as on the structure of the income uses indicated above, that is, both of the latter shape each of the former.

- 6.3. The conditioning factors (or variables) of each of the complex variables.—The function of each variable or aggregate depends not only on the quantum and composition of each but is also determined by its own set of conditioning factors. Thus, given the same amount of aggregate spending, the employment function would depend on the level of technology, the attitude of the state and the people towards saving and investment, and so on. This means that any change in one or more of these conditioning factors would modify the functional behaviour of the variable. For example, improvements in technology or in the efficiency of the transport system would influence production and all the links in the circular chain of the economy either directly or indirectly through derived functions. They are termed parameters in the methodological procedure now and were accounted for in the writings of the earlier conomists in the phrase "other things being equal".
- 6.4. Analytical models and the world of reality.—In the real world, these conditioning factors, or parameters and the variables along with their components act, react and counteract amongst themselves and on the behaviour of consumers, entrepreneurs, managers, workers, and so on with complete contempt for all this learned categorisation. The entrepreneur, whether as a principal or as a fiduciary, has get to take policy-framing or executive decisions through this maze of causations and functional dependence. And the difficulties of this maze or puzzle are magnified by the haze of the time dimension in which most decisions amount to anticipations and forecasting. It is for this reason that in the management of the real economy, mere theoretical knowledge and the aid of statistics are not enough, and instinct and intuition of the entrepreneur and the administrator are so important.
- 6.5. The circular flow of the functioning of the aggregate variables.—Thus, ignoring the complexities of the economy, we see that, given the level of technology and the capital resources the aggregate of employment creates the aggregate of production. In this way, the volume or flow of production is a function of the employment variable. Production, in its turn becomes the variable determining net national income. The next link in the chain is that this national income determines consumption, saving and investment as income uses. Finally these income uses determine employment. It is in this way that the circular flow of the economy goes on.
- 6.6. How the circular flow or circumfluence of the economy generates the upsurge of the spiral of growth.—The preceding analysis gives us the picture of a static economy or an economy in equilibrium. Such a simplified model may be presented as an equation of eertain factors in an economy working for sustenance at a given level of consumption. But we have preferred the terms variables and functions to bring out the equilibrium seeking forces even of a static economy as well as to prepare ourselves for the analysis of growth. Each of the broad variables we have examined above is capable of performing the dual functions of sustaining the circumfluence as well of initiating growth

and converting the circular flow into a spiral of growth. In the long run, the conditioning factors themselves become variables and begin to determine the functions of the highly generalised variables we have examined above. So they add to the number of variables we have got to take into account as we pass on from examining the economy in equilibrium to the economy in growth. This means that, in the long run, the parameters themselves have got to be examined as variables modifying one or more of the functions in the equilibrium analysis.

However, even apart from the dynamics of the parameters, we may indicate briefly the dual role of the four simplified and generalised variables. We find that saving and investment must not simply match the normal annual addition to the work force, but should also increase the supply of power and instruments of production to raise the productivity of labour. Increased production itsels would increase net national income. This, in its turn, would raise the level of consumption and saving in absolute terms, though a greater relative rise in saving creates complications in the economy which have got to be met by compensatory additions to investment and public expenditure in a developed economy. Again, with the same level of productive appliances and work force, intensified employment of the workers and the installed capacities may provide the means for growth as in planned and controlled economies. Next, demand for and supply of employment opportunities are among the dominant factors for economic growth. While independent developments in fundamental sciences are contributing more and more to the advance of technology, innovations in the past were mainly forced by scarcity of labour. On the other side, the pressing demand for employment in the backward countries forces the borrowing of higher technology for improving production, national income, saving, and ultimately employment at a higher level of disposable individual income as well as for matching the annual growth in the work force. This observation brings out how progressive employment is a function of economic growth.

- 6.7. The intermediate stage between static working and growth.—In order to make our model of the economy, in which growth imparts a spiral trend to the circular chain of functions, as next and complete as possible, the intermediate link or stage partaking of both the static and the dynamic functions has got to be brought out. It is clear that there is no economic growth, and so, no saving and no investment if the per capita income is just being kept up. This is because the mere maintenance of the capital (fixed and circulating) has got to come out of the gross income as a part of the cost of production before the net national income becomes available for consumption. But even if the economy is static, but not decadent, net additions to saving and investment, year after year, is necessary to match the annual increase in the work force. Unless this is done productivity per work unit, and income perception, would fall. Hence, in this intermediate position, a marginal saving for a marginal investment is necessary even without making the economy grow.
- 7. Further analysis of consumption as a function of national income.—We have noticed that the cycle of the economy shows that the flow of production, or na ional dividend which represents it in terms of money, is distributed among individuals, corporate bodies or the state which have earned them or to whom any share may be simply transferred, gifted or paid as a levy or a tax. We may for the present ignore any additions to or deductions from the national dividend as a result of receipts from or payments to foreigners. The important point to note is that the entire output of the commodities, flowing day after day, must be consumed and should not pile up in the premises of the producers beyond their voluntary choice to hold them, if the flow is not to be blocked or diminished. They may pass into the market and circulate there through the middlemen or add to their inventory so long as they want to hold them; they may be used for stockpiling or building up buffer stocks or simply sterilised for the sake of price control.

The share which is directly consumed after having been relayed through the middlemen may be consumed by those who are producing consumer goods and are adding to the aggregate of consumer goods as well as drawing from the pool. Or it may be consumed by those who are not adding anything to the flow of consumer goods but are manufacturing appliances or building factories and overheads, or improving technology and physical and mental qualities of the work force. Even in the latter case the income earners are being paid for their work of producing producer goods and are buying from the flow consumer goods. We may for the present ignore the effect of a change in the proportion of the production of these two categories of commodities.

8. THE ROLE OF THE MIDDLEMEN AND COMMERCE IN THE ECONOMY.

8.1. Commerce as an overhead service of the economy.—The production function of the economy and its direct determinants generally occupy so much of the attention of economic analysis that the role of commerce in relation to economic growth and employment should be brought out separately here.

Except in case of highly specialised and unstandardised plants like a steel or an aluminium or a chemical plant for which the buyer contacts the manufacturer or the constructional firm directly, for all the standardised consumer and producer goods it is the middlemen who ceaselessly study, interpret and anticipate the demands of the buyers and pass them on to the producers and manufacturers. The latter are to this extent relieved of an onerous task and anxiety in addition to being freed from the work of carrying heavy stock. Any piling up of stock, as happend in India recently in the textile industry and may threaten the steel industry, clogs the manufacturing process and creates unemployment. It is for this reason that in a subsequent chapter we have pleaded for commerce, like transport, being regarded as an overhead servicing of the entire economy.

8.2. Hawtrey's theory of trade depression and unemployment.—We may, in this connection, refer to Hawtrey's theory of trade depression and unemployment formulated before the theory of Keynes. He held that a boom or a depression is started primarily in response to the changes in the mood and outlook, in the optimism and pessimism, of the wholesalers. It is held that it is the wholesalers to whom the buoyancy or resistance of the consumers is relayed through the retailers. The wholesalers are not guided by the wishes of the buyers alone but are also susceptible to the changes in the rate of interest because they operate on a narrow margin of profit and their capital is more liquid, unlike those of the manufacturing and octopoid (railway, electricity, etc.) industries in which almost the entire investment is in form of fixed capital. For the middlemen the worst that can happen is that a fraction of the merchandise may become dead-stock to be again liquified by clearance sales. Hence, it is urged, it is the middlemen who set the pace of industrial production according to the conditions of the money-market, their forecasts of equilibrium of demand and supply, and so on.

It may be noted that, except for the over-simplification of the effects of the money market, Hawtrey introduces an important link in the structure of the theory of unemployment. Every economic theory has got to be taken in the light of the methodology of approximation or model study, and even Keynes' General Theory is not perfectly general, as we shall see. Moreover, we know that the middleman is not a mere marionette of the market forces but can successfully manipulate them. His subjective attitude, mainly based on mature experiences, is an independent factor in the market. Hence Hawtrey's theory is a useful model and an important link in the chain of Keynesian analysis. Thus a very clear example of how commerce can

sway the market forces and the consumption function is provided by the growth of the hire purchase system in the Western countries.

9. Certain practical implications of the place of commerce in the economics of employment.—We may note here a few important conclusions drawn from the analysis of the role of commerce which have got an important bearing on the subject of employment.

Commerce, which includes the services of the large number of wholesalers and retailers, humble street vendors, hawkers and so on, links each and every large buyer of raw materials and small individual consumer with the growing, mining and manufacturing sectors of the economy. Therefore, it provides a larger volume of employment than the manufacturing industries which can operate on a large scale and concentrate the resources.

Like agriculture, commerce provides ladders for the small working capitalists and sustains free enterprise. In a backward and developing economy, it provides valuable safety valves to relieve the pressure of unemployment and the anxiety of the State.

We have noted, later on, the importance of keeping the channel of production of the small industries and of the master as well as self-employed craftsmen freed from clogging by providing marketing facilities to lift and transfer their products continuously to the market. The small manufacturers and growers are handicapped both by lack of contact with the market as well as by their financial inability to hold stock. In connection with the latter feature we should remember that the total capital of the small manufacturers and growers is so small that even a small accumulation of stock of goods on hand locks up an appreciable proportion of the capital assets. Comparing such involuntary accumulation of stocks in terms of the percentage of the total capital of the enterprises, even very large manufacturing concerns cannot afford to carry this load.

10. The consumption function of national income and the monetary aspect of consumption.—We have now to recall that national income consists of the payments made to all those who have contributed to the production of commodities by means of their property or mental and manual labour. All production is carried on in the twilight of forecasting future demand, but payments for materials and labour are made long before the commodities are sold and become incomes. Now the behaviour of the economy as a whole is just like that of any individual producer in the sense that production would not be carried on at the old level unless the cost of production is recovered fully. This would be possible only if the total of the income is used for purchasing the volume of output which created this income. It is necessary, therefore, to analyse the consumption behaviour of the income earners. In the aggregate, the same set of people are participants in the process of production as workers or property holders which brings them the income to be spent as consumers. But their functional behaviour as consumers is quite different from their functional behaviour as participants in production. As earner, each struggles to maximise his share. As consumer, each seeks to spend the least.

11. THE PATTERN AND DYNAMICS OF CONSUMPTION.

11.1. Consumer horizon as a function of the level of income.—In a backward economy and in a subsistence economy, consumption is a fairly simple function of a limited number of variables. Similarly for persons or strata at the low subsistence level of income, the scanty income is spent for the satisfaction of bare physical needs and there is no scope for choice and preference among diverse wants and commodities. Nor

hoarding or for lending or investment. For this income group, or for a poor community, there is really no consumer choice and no scope for choice and preference among alternative uses and no value judgment which is the assumption of the theory of positive economics of the free or market economy. It is no wonder, therefore, that in periods of economic emergency and deficit supplies of the necessaries of life, as in a total war, the free economy ceases to operate and the system of rationing emerges like an atavism of primitive communism. But as income per family increases, or for persons in the income strata above bare subsistence, there is a widening of the consumer horizon both in (a) space and (b) time.

11.2. Space dimension of the consumer horizon.—The term space horizon may not be very appropriate, but the significance is clear for contrasting it with time horizon. It means that the margin of income over such bare needs as are imposed by nature (and perhaps social conventions) creates scope for choice and preference and for the manifestation of diversity in wants and for value judgments. It means that the structure of wants and of commodities becomes more complex and imparts its complexity to the anticipations or forecasting of the middlemen and producers as well as to the whole phenomenon of value formation. The complexity of the value phenomenon and value theory is further magnified by every technological advance bringing in the problem of time-lag between investment and production, raising the questions of immediate or time-less relative value formation (market equilibrium of demand and supply) as against the cost-price equilibrium and a whole host of the problems of a modern economy. The wide scope for consumer choice and preference necessarily means the possibilities of sudden or slow shifts in demand or changes in the structure of demand which dictate the relative values, and so, ultimately the allocation of productive resources. In this way, the expansion of the consumers' space horizon tends to make the equilibrium of relative values unstable even in the model of a stationary economy as a result of a higher level of income over bare needs. The situation necessarily imparts a structural instability to even a static economy and imposes the responsibility for maintaining a given level of countervailing flexibility in the economy through organisational initiative and technological devices. For example, some of the more enterprising firms of distillers in India have got certain blue-prints for passing on to the manufacture of protective food and soft drinks if the scheme of prohibition becomes more extensive.

From the limited point of view of this Committee looking for the factors bearing on employment, the implications of this analysis may be noted. It means that shifts in consumer choice, which are the concomitants of a prosperous economy, tend to create a margin of frictional unemployment for which every affluent economy has got to be prepared and provide remedial measures. All those factors which hamper the mobility of labour between places and trades tend to increase the volume and duration of this frictional unemployment. We shall later on see how this kind of frictional unemployment is distinct from and in addition to such frictional unemployment as results from the processes of growth. Incidentally, it may also be noted how the risks to which the wage earners are exposed, are the results, in most cases, of economic progress. That is why they are classed as social insecurities for which only social endeavours can provide remedies. We shall be looking into this aspect of the economy in greater detail later on.

11.3. The time horizon of the consumer.—We have already got some hint of the time horizon concept in the statement of how technology has made the problem of value more complex by creating a period of production or a time-lag between investment on the basis of the present and anticipated behaviour of the consumer and production after the maturity of the investment and enterprise. This period of production may

bring in shifts in consumer behaviours while production is maturing on the basis of his past behaviour. It renders the economic equation more and more complex and difficult by making any one or more of the factors unknown quantities.

Our immediate concern is to explain that at every higher level of income there is a greater and greater ability as well as desire to save. The time horizon of the consumer expands in proportion to the height of his income along with the simultaneous expansion of the spot or space horizon. For a considerable stretch, the two compete with one another. The consumer has to weigh between the satisfaction from expenditure on durable consumer goods against saving for the sake of security or the desire for mere possession of cash. But prudential considerations begin to weigh more and more as the present needs, wants and whims are satisfied. It is not possible for us to go into full details of the motives of non-spending and how the savings are disposed of. The subject of saving and demand for saving has got to be considered separately. Here we are concerned only with the effects of non-spending on the equation of the economy. We have, however, to note that apart from any deliberate motives, above certain heights of income varying from person to person according to temperament and outlook, the act of saving becomes automatic after all the wants for immediate consumption and durable consumer goods have been satisfied.

- 12. The production function of consumption.—The analysis in the last section brings us next to the last scene in the panorama of an economy and back to the position from which we started. We have analysed production to be a function of the use of the human and material resources; national income as a function of production; consumption as a function of national income; and finally, we have to explain employment itself as a function of consumption. We are adopting here another simplification by assuming that no new investments are made because we are holding over the analysis of economic growth for subsequent analysis. However, from a purely analytical point of view, and leaving aside the question of the relativity of the theories of employment, it is clear that any gap between aggregate earning and consumption would immediately upset the balance of the economy by disturbing the production function of consumption. Hence for the maintenance of the equilibrium of the economy the earners must spend the total of their income which they have earned in the process of production in the integrated commercialised and monetised economy. If we look at the continuity of the functional relations as a cycle and note how each of the functions in the cycle is at the same time a direct function of some immediate variables and the derived function of the preceding ones, we realise how a disequilibrium at any one point would affect the entire economy.
- 13. The relation between sustenance and growth functions of the factors in the economy.— So far we have seen that the working of an economy is made up of a circular chain of direct and derived functions. In this circular chain of a number of distinguishable links, employment is both the determinant as well as the dependent function demand. An economy however, is not expected consumption or aggregate to be static today, and our analysis of a static economy is just a methodological device though periods of economic stagnation, and even of decay, have been quite common in the long period of history. We have now to examine the growth function for which we have prepared ourselves by analysing the sustenance function. We have seen the circular functional relations among the factors and have referred to the spiral of the economy in growth. It is this spiral of growth, as a function of the economy as a whole, which we have got to examine now. With this difference that the age of growth in living organisms is limited, the analogy of the economy as a social organism with an enduring youth and capacity for growth would not be out of place. The metabolic process of the human body has got to provide both for sustenance and growth. Similarly, a healthy economy has got to provide both for

sustenance and growth. By the usual metho dology of simplification, we now treat all the factors of the static economy taken together as the determinants of growth as well. In other words, we have now to look upon the spiral of the economy as a normal function of the cycle of the economy. It would, however, be necessary to examine each of the factors in the static equation separately to locate the origin of the stimuli and of the functions for growth.

It would be clear from the analysis of the relationships among the factors in the economy that there are no definite terminable causes and discrete limited effects. There is, in fact, no beginning and no end in the macro-economy. It is for this reason that the recent tendency in economic literature has been to avoid the use of the term cause and effect and to use the concept of factors, variables and functions. This continuity and evolutionary nature of the economic universe or macro-economy is present not only in the working of the factors for the static function of sustenance and for growth separately but also when we examine the relationship between sustenance and growth because of the dual role of the factors, like that of the glands and secretions in human body, for achieving both of these functions. We shall be taking notice again in the appropriate places of how each factor or variable in the economy carries simultaneously the potentiality for functioning for static equilibration of sustenance as well as for growth just as each gene in biology is endowed with the capacity for both heredity as well as variation and mutation. It is in the light of this aspect of the economy that we have to explain the intermediate process between sustenance and growth which is a function of the forces of growth but does not amount to growth in the sense of raising the per capita income and the standard of living. An analysis of this economic phenomenon is necessary for both practical purposes as well as for clarifying certain conflicting views in the theories of employment.

14. A slowly growing economy may be nearer the model of a stationary economy than like a twentieth century economy after 1914.— We may now adopt a model in which the elements of economic growth have already appeared but from which the complexities of the economy of an advanced country, or of the economies which are being subjected to a rapid rate of forced growth, are absent. Such a model would correspond fairly closely to the economy of the period on which the theories of the classical economists were developed.

In such a simplified model of a steadily functioning economy, the cost of maintenance and replacement of plant and premises is just like the replenishment of the raw materials used up. It forms part of the recurring cost of production to be recovered from the sale-proceeds and does not create any demand for new investment of capital. So in this economy, no long range anticipations about the marginal productivity of capital, its equivalence with the real rate of interest for the supply of new investment capital and the problem of equating saving and investment are involved. In order to enable a correct appreciation of the Classical and the Keynesian theories of employment, and the relative applicability of each to two different types of economy, it may be mentioned here that the economy in the time of Adam Smith and J.B. Say corresponded to this simplified model fairly closely. Business units were small and it was still the age of rising master craftsmen budding forth as captains of industry. In this situation, wages were still low and there was no large salaried class. So there was not much scope for saving except out of profits. The small rising entrepreneurs ploughed back their profits into their slowly expanding business, and at best borrowed from friends and relations or took them in as sleeping partners. Or they were partially financed by the local unit banks whose proprietors knew the borrower personally. Thus the most important point to note for the purpose of evaluating the Classical and Keynesian theories of employment is that there was no large scale saving except by industrialists and merchants, no organised impersonal capital market and no complete division of functions between saving and invest ment. Except for commercial purposes, there was very little of borrowing for industrial finance and no fine calculation of the equivalence between marginal productivity of capital and long-term interest rate, and between this interest rate and the supply of capital. For the rising small self-made entrepreneur his business was both his employment as well as a way of life as it is for a farmer in the old countries even to-day. So he put his profits back into his business without being diverted by any consideration of the rate of interest for commercial borrowing. As for the working of the macro variables or the factors operating in the entire economy, we have noted that there was little scope for saving by consumers and wage-earners, and so, there was little room for aggregate demand price falling below aggregate cost of production. Moreover, the economy was not so thoroughly integrated as to radiate and multiply the effects of a small disturbing alien factor or any slight aberration in the functioning of any of the factors. Marx did argue that the slumps of the nineteenth century were primarily due to the wages being low and not sufficient for buying the goods produced. We have, however, to note that the profits of the business went back to build up the capital equipment of the community and to increase employment in the long run. It was the age when Watt was not only inventing and improving the steam engine, but was also manufacturing the engines, selling them directly to the customers, going on the round among his customers to repair them and ploughing back the profit earned into the business.

15. Slow growth of the economy since the eighteenth century.—Thus while the economy was less complicated than it is to-day, it was not completely static. It was growing slowly and leisurely, and so, it did not cause the dis-arrays of the equation like a modern conomy moving rapidly. So, in order to make the model correspond more closely to the then real world, it may be mentioned that apart from the urge of the captains of industries to expand their enterprise, there was the social need of the economy to expand as population had begun to grow. Moreover, the technological innovations were creating a demand for saving out of current production and consumption which was revolutionary in comparison with what had been required in the past, though the demand was quite small compared to the insatiable demand for capital to-day or the appreciable demands of the last century. The funds for this purpose of building plants, appliances, factories and inventory came out of profit inflation and exploitation of labour. It is as if the captains of industry had constituted themselves into a taxing authority for financing the necessary growth of the economy. From the point of view of the needs of growth, it makes little difference whether the resources are squeezed by the entrepreneurs or by the State, and the positive fact is that all resources for growth must come either out of current production and consumption or be borrowed to be paid out from the increased future production. The point which has got a direct bearing on our reasoning here is that it is not easy to state clearly on the basis of the available data whether low wages prevailing in the last century did really create deficiency in aggregate demand or rather amounted to a taxation of current consumption for investments, which, in their turn, fostered employment in the manufacture of producer goods. Even the overseas investment of England indirectly created employment at home through the process of developing the supply of raw materials from the colonies and dependencies.

- 13. The Equilibrium of Consumption-Production Function in Relation to Production-Consumption Function in the Macro-economy.
- 16.1 The process of aggregate income earning and spending.—The effects of a gap between the aggregate income of a community paid out for producing a given quantity of commodities and the aggregate expenditure on the same quantity of goods may be brought out by means of a simplified model. We may imagine an isolated community

which, nevertheless, is assumed to possess a monetised and a moderately diversified economy producing eereals, meat, milk, processed food articles, clothes and various other commodities of comfort and luxury worth ten lakh of coins. We assume, further, that production is carried on mainly in the monetised economy through wage work because self-employing and subsistence systems absorb much of the shocks of disequilibrating factors of a modern complex economy. We further assume that during the period under consideration each coin or the entire currency is used only twice, once in generating income and a second time in expenditure so as to get round the complications about circulation of goods, of coins and of income.

But a consideration of how the income is earned is necessary here and we assume yet another simplication. It may be noted, in view of so many simplifications we have been using that this is a perfectly legitimate method in social sciences and corresponds to the laboratory experiments of the natural sciences by which certain operating factors of the real world may be held in abeyance to establish the functional relations between the scleeted variables. So, let us suppose that this income of ten lakh coins which was being paid out as a flow was subjected to taxes and fees by the government of the community to the extent of two lakhs; one lakh being again disburs d during the period in the community for general administration, health and educational and research services, on roads and buildings, and so on. It may be noticed that these outlays are partly unproductive in the direct sense and partly productive in the very long run by improving the health and working capacity and general efficiency of the people and by technological advance for increasing the productivity of labour.

It now remains to trace the inflow of the individual income of the second lakh of coins out of the two lakhs mopped up in fees and taxes. Let us assume that this is redisbursed among the work force in process of construction of a small dam for irrigation. So we find that ultimately the aggregate of ten lakh coins is back in circulation, and if the whole of it is now spent on the consumer goods which cost ten lakh more coins to produce, the economy is in equilibrium.

It may be recalled that every simplification adopted in economic reasoning impounds a hornet's nest of factors which have got to be released, one by one, to enable us to understand clearly the situation we may have in view. In the last case, we adopted a simple device of considering that the money for investment in productive capital was secured by taxation. In a free economy this mobilisation of money for investment is a function of many complex factors inducing the desire to invest and this, in turn, inducing the desire to save and lend. This more complex system of investment in a free economy is the price to be paid for individual freedom, and perhaps for a higher productivity and lower cost of production. The choice between one or the other, that is, between state capitalism and free enterprise, or a compromise between the two, is mainly ideological, but also pragmatic in the under-developed countries with a poor supply of business enterprise. It is in view of the last mentioned condition that the Committee has made certain conditional recommendations for the expansion of state enterprise in Bihar where local private enterprise is not forthcoming.

16.2. The effects of disequilibrium between aggregate expenditure and aggregate income by saving and hoarding.—We may now suppose that one lakh of the coins finally paid out to the earners are saved and hoarded or, if they are precious metals, converted into ornaments. The result would be that an aggregate of only nine lakh coins are being paid to the producers against ten lakhs incurred by them as cost. We agnore considering which of the goods are first hit by this fall in demand. But it is clear that the result would be that those among the producers who are running a loss would contract production and to that extent employment of both labour and capital.

would be reduced and so reduce the purchasing capacity of both workers and property-holders. Those who are thus unemployed and lose their income would now reduce their consumption, and every producer would be fearing to be the next to be hit by the business recession. So an atmosphere of pessimism and uncertainty is introduced in the entire economy. In this way the succession of fall in production and employment goes on until something happens, or some measure is adopted, to reverse this chain reaction of recession and set in a chain reaction of recovery and prosperity.

- 16.3. The effects on the economy of a factor or factors creating an excess of aggregate in some over the aggregate of the cost of production of consumer goods.—If the argument in the preceding sub-section holds good, it follows that the excess of aggregate income over aggregate cost, if more money were put into circulation, would produce effects in the reverse direction if no counteracting factors and forces against inflation intervene. The immediate short-run and long-run effects, however, are very different. They also differ according not only to (a) the period under consideration, but also according to (b) the methods and (c) objectives of the creation and injection of excess income or purchasing power in the economy. We may now enumerate them very briefly.
- 16.4. The objects of the addition to the aggregate income and the channels of this addition.—The additions to the aggregate income may be due to the motive of counteracting the effects of savings or of transfusing vigour into a sagging economy as a symptomic treatment. It may come about through the channel of an expansion of credit and volume of bank money in response to the buoyant outlook of business enterprise or as a doctoring to bolster up a recession in business optimism. This is a very delicate task and the amount of money created may tend to exceed the real need of the economy to maintain an equilibrium between the pace of growth and the pace of monetary expansion owing to the fact that all capitalist production requires time lag and anticipation. It is like a farmer seeking to irrigate his plot from some high pressure reservoir but being unable to turn off the flow in exact time to avoid damage by over-flooding. The same results may follow if deficit financing by the state by means of printing money or by borrowing from the banks is adopted.
- 17. Varying effects of income expansion or inflation according to the conditioning factors.—The analysis of the various causes and effects of deviations from the cost-price equilibrium in the economy is one of the most difficult and complicated subjects in theoretical as well as applied economies. Inspite of the vast literature and so much thinking on the subject, every recession and every inflation compels a re-thinking. The past is only a partial guidance for the present and the future as the situation never repeats itself exactly. What Marshall remarked about the working of the economic forces and likened it to the games of chess in which no two games have ever been played alike applies even more forcefully to this field of business recession and prosperity. It was amazing how the recession in the U.S. A. of 1957-58 deviated from the theoretical pattern. Although production fell by 6 per cent, profits by 30 per cent and unemployment was the highest after the last war, there was no fall in prices and no fall in consumer demand, and the middlement were able to feed the demand out of the stock piled during the past. Anyhow, an attempt is made below to present here a series of generalisations about inflation:—
 - (1) In a growing economy with a rising per capita income, there would be a general tendency for the rate of saving to increase. Moreover, a growing economy with a growing aggregate income and population would require more money in active circulation and as individual holding for managing transactions. Hence an expansion in currency and credit which is only in proportion to these demands would not be inflationary and would be necessary to keep up production and employment. It also means that an inflationary financing of the economy in the first instance may, by these processes, be absorbed and cease to be inflationary.

- (2) In the economically under-developed countries with a low level of production and income, saving has been calculated at only between 4 to 6 per cent of the national income annually while population tends to increase by at least 1.5 per cent. Even if the capital income ratio or productivity of capital is as high as 3 to 1, almost the whole of this saving is absorbed in maintaining the ratio between population and capital and there is very little available for growth. Moreover, even though 10 per cent of the population is supposed to be able to save, the saving is not available for financing production and generally goes into unproductive hoards. For these reasons, it is necessary for the state or the banking system to expand currency and credit for financing growth. As the banking system itself in the backward countries is inelastic, the burden of keeping up the level of the stream of currency falls on the state. And yet the state is not very well qualified to perform this function and keep within proper limits.
- (3) In a backward country this creation of money or deficit financing is further justified on account of the large supply of idle labour and unexploited natural resources just waiting for capital and enterprise. In a developed country, such a measure of deficit financing for levering up the economy may cause inflation because large additional supply of capital in the hands of the entrepreneurs may simply mean competition for the limited supplies of labour and raw materials and push up their prices, raise the cost of production and set in an inflationary trend.
- (4) As a backward economy gathers speed, and the self-acting forces of the market begin to operate and the banking system gets developed, a continuance of deficit financing advocated in the last paragraphs becomes risky as the market has become a complex and a delicate machinery which should be guided but not interfered with as a matter of routine. At this stage it is far better to let development financing be done by the banking system through the mechanism of the interest rate adjusting supply to demand. The great merit of this system would be that the bank-created money would be liquidated as soon as the borrowing enterprises have paid it back in discharge of the loan. In the deficit financing by the state, the money once put into circulation continues there, and it is not easy for the state to agree to recall it by taxation and sterilise it on account of so many demands even for unproductive purposes for funds.
 - Secondly, at this stage it would be wiser to let the new enterprises develop the methods of financing expansion from internal sources of retained profits. The Committee is recommending, later on in the Report, that small and medium enterprises in new fields be exempted from income-tax for the first five years and the arguments of this paragraph provide strong justification for the implementation of this recommendation so that even after the enterprises start making profits, they are retained to be utilised for growth.
- (5) Deficit financing which simply means productive expenditure in advance without any matching of current saving, is automatically self-liquidating if it is productive. When the new and additional income is initially created in this way in form of income for work and property, the total consumer income is increased without any corresponding increase at once in consumer goods. Hence the prices of the existing consumer goods are increased. But there would be compensatory action in the economy along three lines. Firstly, if unused resources are available, it would stimulate the production of consumer goods. Secondly, when direct production of the goods for which the deficit financing was incurred matures, it would further increase and raise the ratio of flow of goods as against the higher level of money income already created.

Thirdly, if the economy is growing, the increase in per capita income would automatically lead to increase in saving and restore the balance between saving and consumption. And by this time, the original currency injected for deficit financing would be so completely absorbed in the system as not to require recall.

- (6) The arguments of the preceding paragraphs show that deficit financing for quickly maturing production schemes would not only provide the ideal leverage for the economy, but would also be quickly self-liquidating and thus avoid inflation. Thus all measures for developing irrigation, small industries and production of consumer goods would be such as can be safely financed by this method.
- 18. The long range effects of inflation: The opposite views on them.—When we come to look into the causes of slow and steady or creeping inflation, both the causes and effects are found to be complex. We may leave here the consideration of such galloping inflations as took place in Germany and many other countries after the First World War and had to be cured by means of drastic measures. A consideration, however, of the slow and steady inflationary rise in prices which has been now going on all over the world with the growth of the economy has got to be considered here.

From the arguments in the preceding section, we come to the conclusion that, for the backward economies, deficit financing is inevitable. Even financing of growith by means of foreign borrowing belongs to the same category. Foreign borrowing may be inflationary if the funds are spent within the borrowing country. Hence, not only for technical reasons but also on the grounds of stability of the price system, borrowing in kind is preferable until the development of technology and skill at home reduces the need for foreign exchange.

It has been noted as a remarkable feature of the world economy and of the economies of the progressive countries that, inspite of the steady growth brought about by the revolutionary innovations in technology and organisation, the price level in course of an entire century from 1814 to 1914 was about the same. On the other hand, during the period of the last decade, even in the countries subject to moderate inflation, prices have been steadily rising at the rate of 2 per cent per annum. The All-India consumer price index numbers for the working class has risen from 100 in 1949 to the average of 116 for 1958. It stood at 123 in October, 1958, and has shown a further upward trend in the second half of 1959. A similar rise with wide variations in between different commodities is found in the index numbers of the wholesale prices. In many other developing countries the rise has been very much greater.

We know that nations had to face far worse inflations in wars. In fact the present high level of prices, compared to that of the year 1939, is partly a legacy of the inflation of the last war. As to the present trend of inflation, we have to view it in the background of what we have so far examined about the features of the economy working for sustenance and growth. We have seen that resources have to come for growth from current consumption or by borrowing. We have also seen the complexity of the chess board of the economy along side the need for deficit financing. There is no doubt that all our data point the need of very wise and judicious pragmatic decisions on the basis of the factors existing in any situation. Therefore, the best that we can do in this respect is to present the different aspects of the subject below.

(1) Money, which the average man considers as wealth as well as a source of income, has been steadily losing its worth or value. If a man has a hundred

rupees as cash or bank deposit, or even in government loan certificates or dischargeable industrial securities, it is as if 2 per cent or more of it is being stolen every year. This inflationary trend is one of the main causes of the insatiable demand for gold and the recent rise in the prices of equities, and the rise in the prices of urban land over a series of years. All these lead to a waste and unproductive use of funds, limiting opportunities for production and employment. Moreover, this trend adds to the necessity of deficit financing as genuine savings are not available.

- It is urged against this point that this effect does not matter much if there is an increase in production and larger employment by deficit financing even if the middle class cash-holders and those with fixed income suffer a loss. The case, however, is not so simple.
- (2) Inflationary trends always tend to reduce the purchasing power of wages, create a ceaseless pressure for rise in wages, salaries and the administrative costs of governments and industries. Thus a vicious spiral of inflation and rise in all these costs and prices goes on in course of which there is a series of frictions reducing efficiency.
 - The advocates of inflation urge that in a growing economy, a continuous pressure for wage increase would be an independent factor and that the manufacturers are always manipulating prices in their own favour. Hence inflation is one of the methods for relieving the society of the burden of high wages and prices.
- (3) Inflationary price trends advancing prices all along the time cause disarray in the economic structure. So the functional use of relative prices as indicators for allocation of productive resources is impaired.
 - Advocates of inflation urge that in the modern age of guided economy, administered prices and welfare objectives, this function of the price system has become weak and ineffective.
- (4) In the periods of inflation, entrepreneurs and investors are induced to embark on large capitalist enterprises and expansions in order to avoid holding the wasting cash assets. This, in the long run, creates excess capacity as anticipations are warped owing to inflation and the long period required by investments for maturation. Hence in the long run there is excess capacity, waste of resources and unemployment.
- The other view is that in an under-developed economy, the risk rather is of unbalanced growth owing to the inexperience and mistakes of the planners and the entrepreneurs. Otherwise, it is held that the growth of basic and heavy industries should provide the foundations for radiating the growth and exercising multiplier effects.
- (5) Another view is that inflation really discourages long range productive plans, and rather diverts funds to commerce and holding of stock of goods and thus earning profits by the inflationary trend without the exercise of the functional role of enterprise. It is further seen that inflation tends to bring in controls. Controls bring into businessall sorts of persons never trained in business and with no intention of staying in it when normal conditions are restored. It thus exercises a demoralising influence on the entrepreneurs.

19. Analysis and Measurement of Economic Growth.

19.1. Meaning of stagnation and growth.—A completely static economy is primarily a conceptual device to-day, though long periods of static economy like that of Europe in the Dark Age or of most of the other countries of the world right down to the nineteenth century, are facts of history. Theoretically we consider any economy to be static or stagnant if the standard of living measured conveniently in terms of per capita real income, is not rising. It would be a decadent economy if the standard is not even stationary but has been going down. According to this definition there is no growth in an economy inspite of an increase in aggregate production and income which merely keep pace with the growth of population. In this sense, there is a growing economy only if productivity per worker, aggregate production, national dividend and per capita income are rising.

There are circumstances in which economic growth may not be accompanied by a rising per capita distributed income or a rising standard of individual living if the state is diverting any large part of current production for the development of capital resources, as was done in the Soviet Union until quite recently. Nevertheless, the economy is advancing by means of forced marches brought out by the other indices like productivity, investment and capital per head of the work force.

19.2. Index of growth: Measurement of quantity and rate of growth.—Continuing the models of representing the sustenance function of the economy by a circle and the growth function by means of imparting a spiral shape to it in time dimension, we may measure the quantity and the rate of growth in terms of each of the factors or functions separately. This would require a separate graph for each factor and function. But we may treat the quantity of any one of the important functions like production, national income, wages, productivity per hour, per capita income, consumption, value of the capital assets, and so on as the representative or index of the entire economy in growth. There is no direct concrete measuring rod for such abstract and complex factors as skill, reliability and outlook of workers, technology and organisation. So the growth in these factors can be measured only in terms of their performance as reflected through any of the quantities mentioned above. The value of such factors of growth which cannot be measured in quantities directly may also be measured indirectly by the co-efficient of output as a function of the input of one or more of the quantifiable factors.

It may even be possible to use this method of measuring growth in history for which reliable quantitative data may be available. Economic history is still on the threshold of quantitative thinking and measurement. If further research and compilation of the known materials for the progressive countries of the world since the sixteenth century could give us satisfactory and continuous quantitative data, a graph of the spirals for each of them and for the world economy could be drawn with each spiral representing a convenient number of years. It would then be possible to give a more concrete and accurate account of the growth of the economies of the leading countries and of the world during the last five hundred years since the advent of the transpecanic diffusion of commerce, culture and population.

20. Employment as a function of economic growth: Differences in the theories of employment of advanced and backward economies.—While an examination of economic growth is the logical complement of the analysis of an economy and its working which we have pursued so far, the subject is of practical significance for the task before the Committee. The theory of employment and unemployment in terms of the equilibrium and disequilibrium between aggregate demand and aggregate cost of production in the macro-economy is the central theme of what has been called the Key-

nesian Revolution in economics. This theory is fully applicable only to the completely integrated and developed economy of the West. Secondly, its main objective is to explain the occasional or cyclical lapses of business activity, production and employment as downward aberrations from the spiral of economic growth. This theory is not applicable for explaining the phenomenon of stabilised unemployment and underemployment of the under-developed economies of the world or in an economy disintegrated by a catastrophe like a war. Very detailed studies of such economies and of the employment problem in them have been conducted by economists since the last war. It is primarily in connection with the problems of under-developed economies that the theories of growth have been worked out, though the basic principles are applicable to the advanced economies also. The fundamental principle emerging about these economies is that employment and production in the backward economies are the functions of growth. There are many local variations in the conditions of the underdeveloped economics of the different backward countries, but there are certain common features which are more numerous than the special conditions. These common features may be indicated here briefly. They will have to be considered when comparing the self-porpagating and the guided factors of economic growth.

- 21. Common employment features of under-developed economies.—The common employment features of the backward economies are the following:—
 - (1) Unemployment of a large number of persons of the employable age.
 - (2) Most of the unemployed are those who are in the labour market for the first time. Their number is much larger than that of persons who have become unemployed after having been on a regular job.
 - (3) A large number of the employable persons are not in the labour market.
 - (4) A large number of the working population are under-employed.

We need not go beyond these on the surface phenomena at this stage. The causes and conditions of these would be examined later on. But it may be mentioned here that a basic stand of the Committee in this respect is that in view of these features of the employment economy in India, the responsibility of the state is not to be limited to the measures for the employment of such persons who have become unemployed after having been on some steady job before. Our responsibility is much more comprehensive of drawing into the economy and putting to productive work the maximum number out of the work force for economic, humanitarian as well as social reasons.

22. EXPANDING EMPLOYMENT AS A FUNCTION OF ECONOMIC GROWTH: NICESSITY OF ECONOMIC GROWT.

In this section we are examining the social and economic necessity of a growing economy with special reference to the employment function of growth. The questions of the extent and limits of the self-acting forces of growth and the role of guidance and inducement of growth are to be examined later on.

22.1. The phenomenon and question of mass poverty and unemployment.—The need for work and employment may continue for other than economic reasons even if we imagine that the progress of science and technology would make available an unlimited supply of power per worker as well as electronic devices to multiply or replace even the technical functions and skill so that with further rapid growth in the capacity of metallurgical, chemical and engineering industries, all needs, wants and whims of consumers would be satisfied with only 5 per cent of the population being at work. The

present problem all over the world, however, is that there is not enough of commodities for satisfying the bare requirements of a human standard of living for a majority of the world's population of about 2,800 million people. It has been estimated that in the backward and under-developed countries of the densely populated regions of Asia and Africa, the bare food and nutritional requirements of 75 per cent or more of the population are not being met while in the less densely populated regions there is want of manufactured goods, of medical care and other amenities of life. Even in many of the richer countries of the world poverty has not been climinated completely.

A recent study in 1959 by the authorities of United Nations Special Fund for aid to the backward countries calculated that, leaving aside China as a non-member, out of the 82 members of the U. N. O., 60 member countries with a population of over 1,000 million are under-developed. The average annual per capita income for these countries was estimated to be 120 dollars against the average of 800 dollars in the rest of the more advanced countries. Even this average of 120 dollars is a high one when we compare it with the actual figure of per capita income of some of the poorer countries. In 1953, it was 60 for India, 114 for Ceylon, 191 for Japan in terms of dollars. The Second Plan target of per capita income in India in 1960-61 is Rs. 331, and it was estimated to have been Rs. 281 in 1955-56 per capita per annum. Even within this figure there is a very much lower average of income for the rural population. Basing his estimates on the figures of the final Report of the National Income Committee, Shri S. R. Bose calculated the per capita rural income to be Rs. 195 and urban income to be Rs. 335 in Bihar in 1950-51.

22.2. The vast mass of the world population below the poverty line.—This low level of money income of an enormous mass of humanity means poverty, hunger, starvation, disease and every kind of misery. We have not been able to complete the calculation of the percentage of the population below the poverty line by estimating the minimum income required for the bare needs in the important under-developed countries with low per capita income and finding out the percentage of the population below this level of income. A mere average of national perceptia income figure does not help us very much unless we know something about the structure of income distribution among different strata. We, however, know that, by a strange coincidence both in the backward as well as in the advanced countries, the upper ten per cent of the population commands forty per cent of the national income, whatever its level. So the rest of the ninety per cent share out only the remaining sixty per cent of the national income. But even within this number, distribution of income is quite uneven. We gather from the Ninth Round of the N.S.S. that 6 crores of Indians have an annual income of Rs. 101 and 4 crores have Rs. 78 while 2 crores have only Rs. 38.

A fair indication of poverty and hunger comes out of the figures of the level of food consumption given by the U.N. Statistical Year Books, though it may not provide a measure for industrial progress since a higher food consumption depends mainly on the ratio between land and population and does not indicate the standard of consumption of other resources and amenities. The following table of consumption of food in terms of calories has got to be viewed in the light of the fact that doctors prescribe a daily intake of 1,600 calories for patients kept at rest in bed. For the average worker the calorie needs range from 2,500 to 3,500 including 4 ounces of protein food. Moreover, a balanced nutritive diet for sustenance and growth (or repair of tissues among the grown up who have ceased to grow) requires the calories to come from a certain proportion of animal food and fat and not wholly from neap carbohydrates (rice, potato and other roots, millets and so on) which are mainly consumed by the poorer communities. With these criteria before us, we may now look at the following table composed from two separate tables in the U.N.O.

Statistical Year Book. The list is not exhaustive and the figures for some advanced countries have been given for the sake of comparison.

TABLE 2.

Country.			Daily total calorie consumed.	Animal protein in grammes.	Percent of calories from carbo- hydrates.
1			2	3	4
U.S.A.	••	••	3,117	€0.7	43
U.K.			3,080	43.4	53
New Zeals	ind		3,380	69.4	46
Ireland			3,480	48.5	• •
Denmark	• •	• •	3,225	51.0	• •
Japan	••		1,970	11.8	82
China	••		2,050	11.0	77
Egypt		63	2,360	11.4	79
Pakistan			2,020	11.0	
Ceylon	• •		1,880	10.0	••
India	••		1,620	5.6	7 6

A perusal of the entire list shows that even in the more advanced countries like Italy, Greece, and so on, a proper nutritional level of consumption still remains to be attained.

22.3. The increasing gap between the standard of life in the advanced and in the backward countries.—The enormous advances in technology brought about, during and after the last war, in advanced countries could not be foreseen during the epression of the thirties. They have increased the productive efficiency of human efforts so much and have led to such increase in the number and capacity of the industrial units in the advanced countries that there has been an enormous expansion of production and a phenomenal rise in the standard of living in them. The old colonial countries which have become independent as well as the other under-develop d countries of Latin America have been seeking to modernise and expand their economies through serious efforts since the last decade. But the accumulated capital resources, organisation and skill of the advanced countries have been working under such strong self-propagating forces of expansion that the gap between the production and standard of life of the advanced and of the newly developing countries has been found to be rather growing than closing. It may be due to the fact that the newer countries have still got to complete the basic structure necessary for imparting the required expansionary or multiplier trends to the superstructure. This may take time to achieve. Meanwhile, not only the progress of technology, but also the very much larger percentage of national income invested every year and the total of capital formation in the advanced countries is increasing the gap. But it is a new and revelutionary trend in the field of international economic relations that the advanced contries are genuinely worried over this phenomenon and are making it a part of their

national policy to extend all possible help for a rapid economic growth in the backward countries. It is no longer a case of a competitive approach towards the problem by the East and the West on a political plane.

We may postpone further analysis of this point since we have to take it up in another section as a factor of growth.

22.4. Urgency of economic growth in view of the rapid increase in population: Employment as a direct function of economic growth.—In the succeeding sections chapters, the subject of rapid increase of population in India and in all under-developed countries has been examined twice. Busing our arguments on the conclusions drawn in those arguments, we find that even this sub-human level of standard of living brought out in a preceding sub-section is in danger of going down further on account of the growth of population unless it is matched by a differential added to the annual growth of capital to foster economic growth provide increasingly productive scope for employment. The study of the U.N. Special Fund administration of the situation of growth of income in the backward member countries on the basis of the figures for 1957 calculated that the gross rise in income was only about 3 percent and popula ion was increasing at 2 percent per annum so that the net increase in per capit; income would come only to 1 per cent. It was also calculated that out of the annual income of 120 billion Dollars for the 60 under-developed member countries with a population of over a billion, only 6 billion Dollars were being converted into productive capital annually with about 3 billion Dollars worth of investments from external sources. If we examine the rate of capital increment in India we find our situation to be slightly better in view of the strenuous efforts through planning. Rising from 5.1 per cent of the national income being invested in 1948-49, it reached 7.8 per cent in 1954-55. The Planning Commission (Second Five-Year Plan Report) estimated investments to attain an annual rate of 7.3 per cent of the national income during the First Plan period and aimed at 10.7 per cent for the Second Plan period. The investments from national income in many of the developing countries, which have already achieved some basic foundations for multiplier effects in agriculture and mining or industry, is much higher on account of the higher per capita income and the high margin above immediate needs and wants. Thus investments during the period of reconstruction in West Germany, Italy and Poland were much above 20 per cent. The last U. N. World Economic Survey shows that total demand between 1950 and 1956 for gross private saving ranged from 32.4 per cent to 22.8 per cent in Australia, has fluctuated between 25.1 per cent and 14.2 per cent in Burma, between 14.9 and 21.3 per cent in Argentina, between 17.2 and 28.5 per cent in New Zealand and 18 to 25.6 per cent in South Africa. Investments in the countries with no basis of a surplus economic sector or with dense population like Ceylon, India, Philippines, and so on, have been low.

22.5. Urgency of growth in view of the back-log of and additions to the figure of unemployment and under-employment in India and Bihar.—The estimates of unemployment and under-employment have been made in later chapters. It can only be stated here that employment and a continuous rise in employment at an increasing level of productivity and earning being a direct function of growth, our problem can only be solved by activising each and every factor of expansion.

Moreover, growth at a high level of technology in the long run is necessary in view of the growth in the number of the educated unemployed. We have noted later on how technological progress has not only tended to increase the level of wages but also to convert more and more of wage earning employment into salaried employment. In a developed economy 20 per cent of the work force is absorbed in the overheads of education and research for creating innovations in technology in advancing science and spreading education.

23. GROWTH AS A FUNCTION OF AN ECONOMY.

The use of the method of analogy for bringing out and explaining the abstract implications and relations of the social sciences is often very helpful for analysis. We may adopt it here for explaining the growth function of the economy.

We have analysed the working of an economy in terms of a chain of relayed functions constituting its circulatory system for maintenance or sustenance and growth. There are complex inter-relations among the factors and their functions, but there is nothing obscure about them, and they are all measurable either directly or indirectly.

- 23.1. Sustenance, growth and mutations in technology and organisation.—We have been constantly using the terms sustenance and growth. The analogy of the vital processes of a living organism may, therefore, be useful to us. There is, however, difference that a social organism, like the economy, is conceived to be normally capable of continuous growth unlike a biological organism subject to growth, stagnation and decay. In a society generation succeeds generation and relays as well as improves the social heritage of knowledge, institutions and material resources. The normal metabolic processes of an organism have got the dual function of nutritioncum-tissue repair and growth corresponding in the economy to production for consumption-cum-maintenance of fixed and circulating capital and for growth. So, even growth is a routine function of an organism and an economy. Over and above the routine growth as a result of the heredity of knowledge, institutions and material resources in the economy and the developmental urge within it, there are now and then revolutionary innovations in technology and organisation corresponding to the mutations in the biological world. Both are leaps over the normal process of heredity or even of minor variations. Revolutionary innovations in technology change the form of capital, processes, and product, as would be clear by comparing the small simple iron smelting furnace of Darby of 1709 with a giant and elaborately structured blast furnace of to-day. The difference between these two is at least as great as that between the Neanderthal man and the homo-sapiens.
- 23.2. Innovations in organisation are as important as those in technology though less frequent.—We also wish to point out that innovations in organisation are as important as those in technology. Great technological revolutions like the steam engine, electricity, and so on, are concrete and spectacular unlike the organisational revolutions. But the Soviet technique of planning and substitution of the price indicators of the market by statistical indicators introduced an organisational revolution more powerful and pervasive than the political revolution of Communism itself because the former has been accepted more widely and has modified the organisation and the methods of guiding even the market economy all over the world. The effects of the earlier innovations of the joint stock system were equally farreaching in providing the appropriate organisation for large scale industries created by technology.

Though revolutionary changes in organisation are not so frequent, less drastic organisational innovations are increasing in number, specially in the fields of labour and management relations, labour and executive control of business like the Yugoslavian system, and so on. These subjects also are being brought under systematic research and experimentation.

24. The individual determinants of the growth function.—We have mentioned that growth is the derived function of a number of variables and primary functions and that each of them can be measured. We have noted earlier that some of the abstract variables and functions cannot be measured directly but only through their

concrete results just as the intensity of want, or of an anticipated satisfaction, can be measured only through the measurable price one is prepared to offer for it. It is with these complexities before us that we may now attempt an examination of the factors or determinants of growth and mutation under the following labels:—

- (1) Population and work force.
- (2) The gifts of nature.
- (3) Science and technology.
- (4) Enterprise and organisation.
- (5) Capital investment and saving.
- (6) Currency and credit management.
- (7) Motivation of the individual attitude and outlook of individuals: sociopolitical overheads.
- (8) International economy as a factor in the growth of national economies.

25. POPULATION AND WORK FORCE.

Measurement of economic growth by means of a measurement of productivity per hour of work at successive times is a fairly simple and useful method. But it can give us the results only of all the factors like the efficiency of capital, of enterprise and supervision, of workers' skill and attitude and other factors taken together. For measuring the contribution of any one of these the method of difference or marginal analysis is adopted. So, in the entire economy the problem of growth is one of an optimum relationship between the work force and all the other factors and conditions. But they have got to be examined one by one.

- 25.1. Labour or work force.—In India, and in most of the other poor and backward countries, the load of unproductive population has been so heavy that we are apt -to feel surprised that there have been situations in which economic progress has been held up for want of an adequate population. For every par icular set of economic conditions there is an optimum of population upto which every increase in number leads to an increasing return against the additional labour unit used. Provided that the economy is not starved for want of food and raw materials, every progress in technology creates a demand for both capital and labour in the long run. The Soviet economists and rulers hold the view that, since they are self-confident about their ability to achieve a continuous technological progress, the growth of population holds out no threat for them. In many other parts of the world, too, a denser population would mean a more rapid progress of their economy, not only by providing more labour for exploiting the natural resources, but also by expanding the aggregate demand of the community. The influx of the European immigrants into the U.S.A. in the last century imparted the primary stimulus for economic growth by creating an exportable surplus of cereals and meat and by providing a home market for industrial growth.
- 2.2. Reasons why a large population affects growth adversely in an under-developed country.—In a backward economy a large population is a drag on the economy and operates adversely against growth for a number of reasons which have got to be clearly seen in order to enable an effective employment policy to be framed. These are that:—
 - (1) In a stagnant economy, specially in the first stages of the efforts to build up the modern frame-work of a welfare state, medical and public health measures, improvement in transport checking famines as well as the initial steps for raising income of the poorest section of the community lead to a rapid fall in death rate without a corresponding fall in birth rate which comes in only after a higher standard of life has been attained. Most of the Asiatic countries and a number of African regions are passing through this stage.

- (2) In this stage of growth, the percentage of the dependent population is large on account of the large percentage of children. So the work force is a lower percentage of the population.
- (3) For these reasons, the slow increase of income is absorbed in consumption. This is all the more so because the general tendency both of the economy and of governmental measures is to raise the income of the lowest income groups living on the verge of starvation. Hence the initial increase in national and per capiti income does not lead to any tendency to save. Consequently, it becomes necessary for the state to adopt fiscal measures for obtaining funds for investments. But, as only the higher incomes and the profits of private enterprise can be taxed, the fiscal measures reduce the capacity of the private sector to invest and grow and create expanding employment opportunities. This limitation on the development of private enterprise is a serious handicap for the expansion of employment opportunities. For, the state can undertake and manage effectively only large scale industries in which the ratio of labour to capital is low. The medium and the small industries, which are more labour intensive, are in the private sector and are adversely affected by taxation and various kinds of control unless special measures are taken to remove their handicaps.
- (4) We are finding that in the old and densely populated countries which are struggling now to build up a modern economy, the growth of the nonagricultural sector is not so rapid as to absorb the natural increase in the labour force. Hence the pressure of population on land tends rather to increase, without increasing appreciably the out turn from land measured per land unit or per labour unit, unless vigorous steps are taken to intensify farming and counter the operation of the law of diminishing returns. It is for this and a number of other reasons that in the first stages of a developing economy, a vigorous agricultural policy is an essential condition for growth. It is also note-worthy that, whereas for reasons of extending relief or on political grounds the present trend of legislation in India is to transfer land to the landless, in later stages of development it would be necessary to draw the work force away from land to the nonagricultural sectors. In view of our large and growing population, however, it may not be necessary to adopt any specific measures for the purpose. The marginal productivity of labour on land is so low that even now only the residual population is left on land, and there is a sustained economic pull for the population to migrate to urban and industrial areas.
- 25.3. Skill and intelligence.—While technology takes over from the worker much of the hard muscular labour, reduces strain, and even improves upon the role of the human senses and the co-ordination among them in industrial operations, there is a growing demand for skill alertness, intelligence, judgment, and general ability to cope with new situations in handling the complicated mechanical appliances. Skill in setting up, operating and maintaining machinery is one of the limiting factors on a rapid industrialisation in the under-developed countries. Skill, therefore, in this wide sense of including intelligence and other mental qualities over and above manual dexterity, is a co-variable of technological development. This is just like the fact that a modern infantryman is not a mere dextrous sword and buckler man, nor a mere marionette in a platoon, but a skilled mechanic and even a decision taking person when thrown on his own resources on patrol duty. It is for these reasons that, as the economy becomes more technological, an increasing percentage of the jobs become salaried ones in place of wage jobs.

Historically, too, accession of skill has often injected new stimuli to the economy. For example, the manufacturing skill of the refugees from France and the Nether-

lands during the period of the Reformation imparted the first industrial stimuli in England. In the early days before the rise of organised sciences, skill and progress of technology went together. The Industrial Revolution in Great Britain and other countries was started by the inventions of practical men like the Darbys, Watt, Arkwright, Evans, Whitney, Colt, and so on.

Progress, however, is not always logical, and historians believe that many of the early inventions in England as well as in America were motivated by the dearth of population and of skilled manual labour.

26. THE GIFTS OF NATURE.

- 26.1. The place of the gifts of nature in the economic variables.—This is a miscellaneous class and a separate assessment of the contribution of this variable to growth, apart from that of the efficiency of capital, is not easy. Many of them constitute the free overheads like a climate most conducive to physical and mental exertion; topography; ratio of coastline to area; the existence of natural harbours; the occurrence of minerals in such geological formations as can enable easy exploitation; or their relative locations which determine the ton-mile of haulage involved in processing, and so on. The mere occurrence of some natural resource or geographical locations has often acted as stimulus for growth provided that the necessary human factor of enterprise is forthcoming.
- 26.2. Their greater relative importance before the age of technology.—We shall see next how the gifts of nature were the dominant determinants of economic development in the days before the growth of technology increased the control of man over nature and the increasing margin of savings made possible large investments for molifying nature, and even remaking geography, as the Soviet technicians term it. The growth of the knowledge of genetics and of chemistry now enables the niggard-liness of, and the gap in the gifts of nature to be overcome by the creation of new biological species of plants and animals and the manufacture of synthetic products. Thus the importance of the role of nature has been relegated to the backward by means of technology and capital investments.
- 26.3. The endowments of nature as providing stimuli and factors for growth.—Before the development of commerce and advanced technology, stimuli for growth and a basis for sustained material progress were provided by the bounties of nature above and below the surface of the earth. A surplus over the mere hand to mouth life of animals was absolutely necessary for progress. Thus barley in the river and mountain valleys of the Old World, maize and potato in the New World, the domestication of animals and discoveries and use of mineral resources in other regions imparted the first stimuli and sustained the material progress in specific regions in the early stages of civilisation.

The Industrial Revolution of Great Britian started on coal and iron. The economic growth of the U.S.A. started from the stimuli of the surplus agricultural produce created by land and the immigrant population. Even the present prosperity of the U.S.A. is partly due to the quantity and variety of the natural resources imparting a solid base for the economy. A perusal of the tables of savings and investments in the new countries of the world in the annual World Economic Surveys of the U.N.O. shows that the countries like Australia, New Zealand, Argentina, Brazil, Ghana, and so on, with some special gift of nature like wool, wheat, meat, dairy produce, vegetable oil resources, and so on, are better able to get a surplus for transforming technology into capital investments than others. If local enterprise could be coming forth, the oil of the Near and the Middle East would have ushered in an

- (21) Sri M. John, M.P., President, Indian National Trade Union Congress, Bihar, Jamshedpur.
- (22) Sri Basawan Singh, M.L.A., President, Hind Mazdoor Sabha, Bihar, Patna.
- (23) Sri Ignes Kujur, M.L.A.
- (24) Sri Chandrashekhar Singh, M.L.A.
- (25) Sri Brajanandan Prasad, M.L.C.
- (26) Sri Gouri Shankar Dalmia, M.L.C.
- (27) Sri R. Narsingh Rao.
- (28) Sri Dhwaja Prasad Sahu, Member, Bihar State Khadi and Village Industries Board.
- (29) Sri Gajanan Das, Secretary, Bihar Khadi and Gramodyog Sangh, Muzaffarpur.
- (30) Sri R.S. Pande, I.A.S., Agent, Tata Iron and Steel Company, Limited—Member-Secretary.
- (31) Sri Gorakhnath Sinha, Member, Railway Rates Tribunal, Madras—Member-Additional Secretary.
- (32) Sri Harnandan Prasad, I.A.S., Deputy Secretary, Finance Department— Member-Joint Secretary.



era of emergence from the stagnation of the centuries after the decline of the Arab civilisation in these regions.

27. SCIENCE AND TECHNOLOGY.

It would not be possible to quantify the contributions to growth made by innovations of science and technology and to state that this much of one of those determinants induces so much of growth in productivity or production and national income. The contributions can be measured only in terms of the results. But technological progress has been and would be the most direct determinant of the rate of growth after it has been physically embodied in the forms of machinery, processes and products. The last category should not be forgotten in view of new products created by chemistry, biochemistry and genetics.

27.1. The march of technology before and after the nineteenth century.—Before the middle of the last century, inventions or innovations and discoveries of scientific truth depended on chance finds and flashes of individual minds. However, since the beginning of the Modern Age, counted from the 16th century, knowledge tended to become cumulative and diffusion more systematic instead being lost and forgotten to be rediscovered again and again. The establishment of the Royal Society in England in the eighteenth century and the development of chemical research in the German Universities in the last century marked the beginning of organised and systematic research and the use of science for technological innovation. German Universities also contributed the technique of research through plodding team work with certain concrete objectives. Thereafter, the First World War, the Soviet Planning of research, and then the intensification of research during the Second World War have converted scientific and technological research into routine endeavours of the state and the universities. The older concept of liberal education has been considerably modified during the short period of a decade or so to impart a new utilitarian orientation to it. It is estimated that in the advanced countries, as much as 20 per cent of the work force is engaged in education, scientific research and technological education to increase the productivity of the other 80 per cent engaged in direct production. production.

It may also be noted how the innovations in technology have become more and more dependent on the progress of the fundamentals of all the sciences like chemistry, physics, biology, even mathematics and numerous other overlapping sciences. Similarly in the field of organisation and socio-economic relations, psychology has been making important contributions.

27.2. Technology and demand for capital and saving.—We sometimes see the use of the term capital-saving appliances and innovations. This can sonly mean that the appliances in question have become more efficient. So in some cases an innovation may enable a million pounds worth of capital to do the work of four million pounds before. But this is not the only or the primary objective of an innovation. Nor does the effect end here. In general, every technological advance has increased the scale of production and has imparted an expansionary trend to the entire economy through the growing volume of its direct products and the large number of new industries proliferating from it. A survey of any such innovation as of the improvements in the production of steel and new alloys, of aluminium reduction, of aeroengines, of plastics, and so on, would bring out the processes of the direct phase of growth and of the proliferation along with the multiplier effects on the demand for capital, enterprise and work force. And provided the growth in each specific field is balanced with the rest of the economy, the entire circulatory function of production and consumption is activised and the spiral of growth is stimulated with an expanding demand for employment and capital.

27.3. Technology and the supply of capital.—While technological advance goes on adding to the enormous demand for capital, it also increases the supply of savings by continuously increasing productivity, per capita income, the capacity for saving and investment. It has been estimated that the normal saving from the national income in the backward countries comes only to 3 per cent, and this too, as a result of the upper ten per cent of the population enjoying forty per cent of the income. With the first phase of the trend for growth, the self-propagating forces raise it to five per cent. On the other hand, in the advanced countries the economy automatically spares twelve per cent for investment. This amount may go up to over twenty per cent and has even touched twenty-eight per cent if the self-propagating forces are stimulated or coerced by the state in a controlled or in a guided free economy.

Technology also increases the willingness to save by increasing the demand price of saving (interest rate) on account of the rise in the marginal productivity of capital. It is remarkable that even as late as the thirties of this century Keynes did not foresee the new technological revolutions of the war and the post-war period and the world-wide trend of modernisation of the economics of the backward countries and the insatiable demand for capital. He felt worried over the future of the marginal productivity or efficiency of capital and its consequential effects on the desire to save because he felt that the potentialities of the previous scientific discoveries and technological advances had already been exhausted. One gets glimpses of this pessimism from chapter twenty-one of his General Theory.

- 27.4. Technological advances and employment.—The developments since the last war have finally set at rest the fear that inventions reduce employment. There has been an unprecedented progress of technology and expansion of production as well as employment during the last decade in all the leading countries of the world. The annual World Economic Surveys and the Statistical Year Book of the U.N.O. and the I.L.O. have been showing these trends very clearly. We are giving below the explanation for them:—
 - (a) The greatest advances in technology have mainly affected the basic and heavy metallurgical, chemical and engineering industries. In most cases an innovation affects all of them through reciprocating stimuli from one to the other. Next, within each of them and out of their inter-dependence many new industries of the heavier type are created. Each of them in turn gives rise to a number of ancillary and derived industries; creates an additional demand for various overheads of transportation, power, technical training; further lines of specific research and so on. Thus, in the aggregate, the direct measurable succession of multiplier effects as well as the long range radiation of stimuli continue the course of providing an expanding field for the employment of capital, enterprise and labour.
 - (b) Even though technology has made the basic and the heavier industries near the base highly capital intensive, the successive proliferations tend to become more and more labour intensive. Moreover, the entire process creates enormous fields for commerce and servicing. We have noted at two other places in the Report why commerce, including servicing tends to multiply the employment figures of the industries:
 - (c) Provided that a number of conditions are fulfilled, as we shall see in the section dealing with the self-acting and the guided forces of the economy, these developments expand production, increase national income and aggregate consumption and saving and then relay the momentum of development back to the production function of consumption.

(d) Increase in productivity and in aggregate production in the advanced contries has tended to bring into existence shorter working week and day. Rapid growth of national production has made this deliberate measure necessary so that increased leisure may provide scope for the awareness of new wants and increase aggregate demand. The deliberate policy to foster demand by reducing the hours of work from each worker creates employment for a larger number of persons.

28. ENTERPRISE AND ORGANISATION.

- 28.1. Meaning and functions of Enterprise.—If we apply the method of differential analysis adopted for assessing separately the contribution of each factor to a measurable result when many factors are involved, we shall find that productive efficiency of the out put of units of material resources, or of their value, of units of work force is a function of enterprise and organisation. Enterprise is the factor which brings together all the factors of production and is the value judging authority in the productive application and allocation of resources in the sphere of production just as the consumer is the value judging authority in consumption and demand. Enterprise is a versatile factor and it would be useful to enumerate its functions and also forms.
 - (1) Enterprise, in the most common form of static managerial role, seeks to maximise the efficiency of the input-output function within each particular unit of business in manufacture, agriculture or commerce.
 - (2) The enterpriser in his role of a commercial manager, seeks to maximise the value of his output sold and to minimise the value of his input bought. This enables the most economical use of the productive resources and maximises satisfaction.
 - (3) For both these purposes, the entreprencur sets up organisation as the concrete embodiments of enterprise to execute his policy.
 - (4) The enterpriser is the value judging authority within his enterprise as well as between his enterprise and the macro-economy. The enterprise may be a small family unit, a giant private corporation or one set up by the state. Thus the individual enterpriser integrates his unit to the macro-economy by his decisions on the relations of his economy to the entire economy.
 - (5) As a result, collectively the enterprisers integrate the individual enterprises into the economy of the country. Each is guided by his anticipated judgment of profit as a reward or earning depending on his static managerial role and the efficiency of his anticipations and leadership for growth.
 - (6) By anticipating and taking risks and by undertaking new lines of production, the enterprisers function as promoters or leaders for achieving the dynamic adjustment of the economy according to technological progress and anticipated demands. Thus enterprise is the vehicle for achieving a balanced static working of the economy as well as for achieving economic growth.
 - (7) In this way, enterprise, both in static management as well as dynamic leadership is responsible for bringing together the factors of production, converting technology and saving into instruments of production, activising labour as working force, allocating resources among different uses to-day and between

present and future uses by the leverage of interest rates, and for ceaselessly adjusting the working of the economy to the changing parameters, both for sustenance and growth. So, just as the consumer market is operated by the collective decision of all the family heads, spending associations and the state, the production function of the economy is managed by all the enterprisers who are the decision making points in the macro-economy consisting of the humblest farmer and craftsmen as well as the giant corporations and the state. Illustrating it by means of some old figures we find that in 1945, in the U.S.A. there were nine millions and a quarter of decision making authorities running the macro-economy both for sustenance and growth. They consisted of 6 million farmers, 1.5 million retail traders, 6,19,800 servicing enterprisers, 2,85,600 enterprisers in finance, 2,62,500 in manufacturing, 2,05,500 in transport communication and public utilities, 1,89,100 in contract work and 1,41,800 in wholesale trade, making a total of about 9.24 million enterprises managing the entire circulatory system of the macro-economy and the relay of its functions.

- (8) As a result of this role of a dynamic leader of the economy the large enterpriser in the last century, and even the small ones in the preceding period, were also the creators of the technological innovations. Innovation has become a function of organised state endeavours in research during the present century mainly because technological advance has become more closely dependent upon the discoveries of the fundamental science. But even then associative enterprises still continue to play a large role in the richer democracies in matter of research.
- 28.2. Enterprise in relation to the self-acting forces of the market.—These arguments show that the self-acting forces of the economy are ultimately equivalent to the motivation of the enterprisers. And here we have to note that in a free economy, enterprise, in the sense of the behaviour of the entrepreneurs in the aggregate, forms or builds up the market just like the behaviour of the individual buyers ultimately being the market-determining forces. But when once the market forces have been built up and integrated as a structure, they generally determine the behaviour of the entrepreneur just as for each individual consumer, the ruling market prices are predetermined and he has to adjust his consumer behaviour to them. The relation between the market economy and the individual is very much like that between the individual voter and the government. Theoretically, the collective behaviour of the voters is government determining. But in the day to day relations, each individual is separately at the mercy of the government through the laws made by it and their execution by the government agencies as well as through the play of the individual judgment of the bureaucrats.
- 28.3. Enterprise, profit and growth.—Both enterprise and profit are functional ariables in the economy. Profit is a measure and indication of the level of the performance of enterprise and of individual enterprisers. It is the measuring rod of the success of each enterprise in having anticipated consumer demand and the economic trends correctly, in the allocation of the resources and in having maximised productive efficiency through organisation and management.

Profit is no doubt vulnerable to perversions in both the private and in the public sectors. In the first, the carning of profit may degenerate into profiteering. In the public sector it may be perverted, by means of its dilution with veiled taxation, for covering up bureaucratic inefficiency. But though much of the confomic effects would depend on how the profits are used, even if perverted, any perversion

of profit lowers its value as an indicator for growth and warps the allocation of resources in current uses as well as between current and future uses. We have seen the conditions in which the urgency of growth and the lack of means through the market forces may necessitate a squeeze and forced stinting of consumption for financing and fostering growth. In the long run, however, a healthy economy should be able to grow on the strength of the profits earned by the individual enterprises. It does not matter whether the profits are earned by private or by state enterprise. But if a proper balance between maintenance and growth is to be maintained, it is desirable to depend on profits along with voluntary savings for growth. One great merit of the system of growth mainly financed from profits is to integrate more closely the functions of saving and investment.

Economic functions, however, cannot be cast into logical forms. With the growth of consumer income and saving, and the growing balance of prudential savings in pension and provident funds, insurance, and so on, the problem of a more democratic ownership of enterprises is posed.

29. CAPITAL AS A FACTOR OF (ROWTH.

29.1. Capital in relation to saving and investment.—Capital in the form of (1) instrumental capital which is fixed and (2) of accessory and circulating capital in the form of the raw materials used and the money resources for financing the transactions is the direct determinant of growth. The annual increase in capital is not only (1) the determinant of the rate of future growth but is also (2) the result of past growth and (3) is one of the accepted indices for measuring the rate of growth.

Capital results from the productive use or investment of saving. Saving consists of the income which is not consumed. In a primitive community, or in a subsistence economy, saving consists of the real goods stored away and earmarked for future consumption in emergency or on special occasions or for productive use. Money income also may be saved similarly for similar purposes. When the saving is put to some income-earning use, it becomes an investment. But though the money or grain lent for consumption to needy borrowers is an investment to the lender it is not an investment for the society. The test of an investment is that it adds to the stock of fixed instrumental capital or to the stock of circulating capital. In manufactures the capital is mainly instrumental and fixed. In commerce the capital is in the form of goods for sale and of cash. So all saving; put in these forms are investments. Similarly, all savings permanently sunk for improving land is capital.

29.2. The structure of capital.—Technology has completely transformed the form and structure of capital after the Industrial Revolution. It no longer consists of the simple tools or live-stock of the farmers of the last century, and even farm capital in the advanced countries has become highly instrumental. Nor is the invested capital of a community mainly in the form of the goods in circulation or the cash resources of commerce of the days of the chartered companies of the sixteenth to the eighteenth centuries. The volume of commercial capital, too, has increased enormously on account of the money required for transactions by the middlemen and the goods of all kinds in circulation. But its relative position is not the same as before on account of the increase in other forms of capital. An examination of the existing structure of capital and of the annual investments shows a great increase in the ratio of fixed capital. The rate at which savings, whether voluntary or secured by the state by means of taxation, or by borrowing by the state and private enterprise, or by retained profits, are converted into concrete fixed capital provides a clear measure of the growth of an economy, as already noted. In his Economics of Growth in Chapter V, Professor

W. A. Lewis gives the following generalised structure of annual investments in the advanced countries:—

Housing (residential) ... About 25 per cent.

Public works and utilities ... About 35 per cent.

Manufacturing and agriculture ... About 30 per cent.

Other commerce ... About 10 per cent.

29.3. Investment in housing.—At first sight we might feel that the annual investment on residential housing is rather a drain on the supply of instrumental capital for economic growth. Logically there is no reason why we should treat it separately from other durable consumer goods akin to houses like air-conditioning sets or articles of furniture. We, however, accept the international system of social accounting and include it in capital investment.

The general estimate of 25 per cent of the annual investments being absorbed in housing comes to the same percentage as is invested in instrumental and accessory capital and factory buildings. This large share of the dead stock in the annual investment is a necessary concomitant of industrialisation, urbanisation and the growth of population. The aggregate investment in buildings would come to a higher figure if we note that the amount invested in public buildings is included in the second item along with public utilities in the estimate of Lewis. As to any reliable estimate for India, we have no figures for the house-building activities beyond those undertaken by the governments and large organisations. It is seen that in the rural areas, house-building is among the first outlays after the level of income of a family has reached the stage of prosperity. Then the growth of urbanisation which we have described later on, necessarily expands building activities. Again, the governments themselves have been very active with building programmes for offices and residential purposes.

The Committee has come to the conclusion, after taking into account the following considerations, that in spite of building activities not possessing the same multiplier effects as industrial investment, investment in housing has got a very high employment value and should be encouraged up to the limit where it may begin to compete for resources with the demand of the industries. Our views are based on the considerations given below:—

- (1) Housing does not compete for the scarce instrumental goods. It is clearly labour intensive and provides considerable employment in the manufacture of bricks, tiles, wood work and direct constructional activities.
- (2) As to the other materials, they do not create any demand for foreign exchange.
- (3) Coal for firing brick and tile is not in short supply and the consumption of cement evidently is in need of stimulation to enable the industry to work to its expanded capacity. Moreover, unless consumer demand is stimulated the increasing production of steel cannot be absorbed by the transport and engineering industries alone and the steel industry has got to be saved from the situation in which the cement industry has been landed. The steel capacity of the leading producers of the world has been expanding so much that there is not much chance of our building up a large foreign market for a number of reasons. Firstly, in spite of a world-wide demand

for industrialisation in the backward countries, their capital resources are not quite adequate for expanding their demand for absorbing the growing supply of steel which would come on the world market after a year or two. Secondly, the advanced countries are making strenuous efforts to cut down their cost of production whereas the cost of Indian steel has been going up. Thirdly, in many cases, large engineering firms of builders and contractors are the best sales agents for steel, but there is little chance of India developing such a line of business in the foreign markets in view of our inadequacy in this respect for meeting even the home demand.

For all these reasons it is necessary that the consumer demand for steel is stimulated in order to enable the industry to work to its full capacity so as to keep up the level of employment and keep down the cost of production. The lowering of the cost of production may enable us to build up a small export trade on the basis of competitive prices. It would not be desirable to try to sell steel abroad by means of an administered price system with a higher price at home and a lower one for export. Such a policy is likely to strain the good-will of the advanced countries which is a more valuable asset than any small amount of foreign exchange earned by the export of steel with the help of an artificial price system.

One other building material is glass. The glass industry is making good progress in spite of certain initial handicaps caused by the larger number of ton-miles involved in moving the raw materials and other causes. An expansion of the home market would help to expand the industry and cut down the cost of production.

- (4) Our vast unemployed labour resources are wasting assets. So, although investments in non-industrial housing have got only limited multiplier effects, they enable us to convert the wasting assets of the labour force into concrete national wealth.
- (5) Housing investments are carried on in very small units and each investment is complete by itself. So housing activities can be expanded or contracted without affecting the structure of economic growth and is the most valuable cushion in the economy on march. It is for this reason that it is one of the effective anti-depression measures kept in reserve in the advanced countries.

29.4. Fixed investments in public works and utilities.—The works under this head consist of roads, bridges, harbours and docks, transport system, water works, electrical works and such dead stock (non-earning assets) as schools, hospitals, government buildings, and so on.

It is remarkable that even in the advanced countries they should absorb 35 per cent of the current investments which shows the importance of the economic overheads. The newly developing countries have got to spend even more, if they can afford, so as to build up the economic overheads from scratch. A deficiency in them reduces the marginal efficiency of the directly productive instrumental and accessory capital in the economy.

The recognition of the importance of the overheads is brought out by the fact that the World Bank and other international bodies give a top priority to them in granting loans to backward countries. The fact that the backward countries are not investing more in these fixed assets is due to the general scarcity of capital.

Four other important considerations have got to be noted in this respect. Firstly, the overheads affect the cost structure to such an extent that their efficiency is necessary for stimulating aggregate demand through the old practice of price reduction. Moreover, a lowering of the cost structure is necessary to enable the products to withstand foreign competitions. Secondly, being the overheads of the economy, they may be taken up even in periods of depression as they would not create a structural imbalance in consumer goods. The adjustment of the level of investment in many of them is, as just mentioned, one of the orthodox remedies in the list of anti-depression stimulants. Thirdly, an important consideration from the point of view of the Indian economy lies in the fact that many of these investments may be made labour-intensive and capital-saving. In the construction of roads, bridges, dams, and such other works, these arguments are applicable as we have noted in favour of housing with much greater force. Fourthly, they provide a very valuable stable and recurring quantum of annual employment in maintenance and repairs.

We are giving below the percentages of certain investments in the Second Five-Year Plan which are made up predominantly of permanent fixed investments ir overheads:—

Transport and communications ... 28.9 per cent.

Power and irrigation 19.0 per cent.

Housing .. 2.5 per cent.

50.4 per cent.

The percentage is likely to exceed 55 if we take into account further figures from the break-down of those for health, education, social welfare, and so on under the main head of Social Services. These crude figures are not likely to be far removed from the net refined figure which may be obtained by examining the details of all the heads and sub-heads and excluding the purely administrative expenditure included in them.

29.5. Investment in manufacturing and agriculture.—Out of the estimate of Lewis of 30 per cent invested in manufactures and agriculture, U. K. was taking 5 per cent of the gross investment in agriculture as against 8 to 10 per cent in the U. S. A. In a country of small peasant farmers and subsistence farming much of the investment on farms is not spectacular and takes the form of small additions to the live-stock in Europe. In India, a cursory glance around the countryside would show how the fruits of investments of labour are visible in form of the terraced fields, tanks, wells, reservoirs and of the other works. We have recommended this type of labour investment in our chapters on intensive farming and mass employment. We could not calculate from the break-down figures of the investments in agriculture, forestry, fishery and co-operation the percentage being devoted to the building up of fixed assets out of the 11.8 per cent carmarked for them under the Second Plan.

The investment for mining and industries in the Second Plan in the Public Sector was 18.3 per cent.

We should note, however, that in arriving at figures of investments we have been handicapped for want of separate figures of the plan expenditure for administration and promotion as distinct from the net addition to the fixed capital assets. Moreover, we have not been able to get any dependable figure for the aggregate of the large

and small investments in the private sector. Moreover, in a backward economy, an appreciable annual investment is in form of the additions to the capital of the small enterprises and hand trades for which calculation is not easy.

- 29.6. Investment in Commerce.—The estimate of annual investment in commerce in the advanced countries is 10 per cent by Lewis. No reliable estimate for backward countries is possible. But we know vaguely that a large amount of small savings and profits of the small enterprises are invested in the established family enterprises and also new ventures. The employment value of commerce lies in the fact that it means an appreciable relief of unemployment by self-employment, though its multiplier value for employment is limited. But indirectly, the development of commerce is important for stimulating aggregate demand and so contributing to the production function of consumption. Since we have discussed the role of commerce in the economy already, we do not propose to add anything more here.
- 29.7. Maintenance of the material capital resources.—It is easy to see that the circulating capital has got to be replaced continuously and maintained at least at the old level. Similarly, the fixed capital, too, has got to be kept at the proper level of working efficiently by means of routine maintenance and repairs. Finally, occasional replacement of the fixed assets, depending on the life of the plant, is necessary as a matter of routine. This eventuality is calculable and is provided for by means of annual contributions to a depreciation fund. It is only after these recurring liabilities have been met that we can arrive at the net figure of the income created during a year which can be divided among the factors of production. All these are like the normal metabolic processes of an organism for replacing the calories spent by work and for tissue repairs. Sometimes entire plants and other concrete capital may need scrapping owing to their becoming obsolete on account of a technological advance. We propose to treat this as a question of growth according to our earlier reasoning and definitions.

It is calculated that in a developed economy 8 to 12 per cent of the gross national income may be required for maintenance. Evidently it depends on the life of the capital, on the wear and tear by use and on the wear and tear due to time itself. The calcula ion of all these factors has been considerably standardised now into the technique into which we need not go. The conclusion from our special point of view is that in a developed economy with a large inheritance of accumulated fixed capital, there is a given amount of steady employment provided by the economy for the maintenance of the fixed assets which does not fluctuate very much with the fluctuations in the level of current production.

- 29.8. Capital in relation to investment.—(a) We have already discussed the role of enterprise in giving a physical embodiment to savings by investment and in thus canalising the resources among different uses and in investments with different periods of maturation. There is no standard pattern of the structure of industries and the relative weight of different industries in any economy. There is no doubt a trend towards a standard pattern in which the different parts of the structure are articulated in interdependent relationships. But the pattern varies widely according to the structure of the basic natural resources and the stage of the development of the economy. Subject to these variations, the investments are distributed among different sectors like agriculture and land utilisation; mining; the overheads of the economy; metallurgical, chemical and heavy engineering industries; lighter producer goods industries; all kinds of consumer goods; housing; commerce and hand trades in certain proportions.
- (b) One marked feature of a growing economy is the increase in the ratio of the production of capital goods to consumer goods. But it should be noted that this

feature also accounts for a more rapid pace in the absolute figure of the production of consumer goods and a continuous rise in productivity per worker hour.

29.9. Saving and investment.—We have already examined the general and fundamental features of saving at some length and from different points of view. In a developed economy the relationship and equilibrium of saving with investment is made difficult because the investment of saving is not automatic and easily equilibrated as in the days of the small entrepreneurs. The increasing level of per capita income in a rich community expands the consumer horizon of time for a larger number of people. Meanwhile, the process tends to reduce the number and volume of aggregate business of the small enterprises in which the equilibrium of saving and investment is automatic. Then there is the other factor that economic growth does not necessarily lead to a more equal distribution of income in spite of the growing percentage share of wages and salaries. The reason is not very far to seck. The progress of technology tends to increase the demand for capital and the total value of capital from year to year to such an extent that the earning of property does not tend to fall.

The result of all these processes, along with the factor so often mentioned of the increasing role of anticipation in investment and of the long life of investments (locomotives, blast furnaces and other heavy plants with a life of 25 to 30 years) and their enormous costs, is that investment decisions are not necessarily linked with the decisions responsible for aggregate saving. We have not been able to examine how far the system of retained profits is likely to make the equilibrium of saving and investment easier.

An even more important factor bearing on the discquilibrium between saving and investment is that these two economic phenomena are not functionally linked like the price and demand relationship. Each is governed by its own independent set of variables and the rate of interest which was regarded formerly as equating the supply of saving with the demand of investment is not so straight, direct and effective now. Hence aggregate demand price in the macro-economy may fall short of aggregate cost of the consumable goods and cause depression and unemployment. Or, as a result of over-investment, aggregate demand may exceed aggregate cost, cause inflation, inflated demand for labour and other factors, ultimately leading to imbalances, recession and unemployment.

We may also note that every vigorous economy has got certain institutions and automatic forces to cushion off a given margin of disequilibrium between saving and investment through the volume of goods in circulation in commerce and in the commercial inventory. There is also the capacity for adjustments in the price system itself. But beyond a given margin, the self-acting forces of the economy fail and call for the use of remedial measures and guidance which we shall look into later on.

30. THE INSTITUTION OF MONEY AND ITS MANAGEMENT AS FACTORS IN GROWTH.

30.1. The monetised economy.—Economic relationships become monetised and more easily measurable by the growth of division of occupations, of exchange and of the aggregation of individuals and individual value decisions into specific markets, and finally, by the aggregation of these markets into the monetised economy as a whole. When this level of integration is attained, every motivation of individuals and the operation of all the variables in the macro-economy take place in terms of money. So, all value judgments of the consumer, the entrepreneur and the state assume awareness and are formulated through money. Necessarily, therefore, all the factors and functions of the macro-economy operate through money. Economic reasoning may often be conducted in terms of real goods and services by way of simplification.

But it is impossible to undertake much useful analysis by this method without thinking and analysing in terms of money.

30.2. Systems of money and scope for management.—So long as the leading countries of the world were on gold standard or on gold exchange standard, the ability to adjust the supply of money to the needs of the economy was not unlimited even though the exchange standard was more flexible. Economic growth, therefore, depended to some extent on the supply of bullion which itself did not depend on the demand for money but on the capacity of the mines and on accidents of new discoveries. Moreover, had it not been for the development of banking and the note issue system of the Western countries, full exploitation of the technological advances of last century would have been seriously restricted. The period of recession in the second half of the last century was attributed to the shrinkage in the output of gold. Hence serious efforts were made to make bimetallism a universal system. Earlier still, the economic stagnation of the Middle Ages was attributed mainly to the scarcity of bullion in Europe which was removed by the influx of gold and silver from the sixteenth century from the New World.

With the adoption of managed currencies all over the world, it has been now possible to free monetary policy from complete dependence on gold while retaining gold as an indicator for the relative values of national currencies. This factor enables the state to guide the economy of any country with greater freedom, but it also imposes heavier responsibilities on Government for restraint in the use of a tool which has as much potentialities for doing good as for doing harm. Moreover, as we shall see, even with a managed currency system a complete success in making money purely passive and neutral has not been achieved.

30.3. The scope for the management of the economy through the money machine.—
The active and passive roles of money have now got to be looked at in the light of the facts which have been explained in the preceding paragraphs. The first is that all the variables in the economy embracing the motives of the human agents as consumers or entrepreneurs (and both private persons or associations and the state function in each capacity), the material resources as well as all sorts of economic relationships work in terms of and through the medium of money. The second is that the discipline or control; or as some would say, the tyranny of gold no longer limits the power of the monetary authorities consisting of the state and the monetary and credit agencies. The third fact, which is obvious, is the authority of the state over the entire economy which may be used for keeping up and guiding the price system or even replacing it.

The result of all these facts taken together is to make it possible for the State to operate the entire economy, if it so desires, as it likes through the mechanism of money just as any giant automatic machine may be operated by means of a lever which even a child can pull.

30.4. The systems of managing the economy through the mechanism of money.—We find different economic systems using this power to control or guide the economy through the money mechanism with different objectives and in different ways. The Soviet economy started, after the end of the New Economic Policy of the transitional stage, with almost a complete distrust of money as a capitalist institution and tried to build up the basic framework of the Plan in terms of real economy for all purposes of allocation of resources. The usefulness of money as a medium or carrier, however, was soon realised and the monetary system of the transitional period, instead of being scrapped, was built up into a system subservient to the planned economy. On the other hand, the State Bank of Yugoslavia is more independent and has got more varied functions, including that of being the accountant

of the entire economy. The systems of the free economies seek to help the price system to work smoothly and the monetary authorities intervene mainly to rectify trends of recession and inflation.

The ability to obtain command over resources for the purposes of war, as well as the limitations on this ability, by means of printing notes was discovered by the states even during the gold standard regime. It was like the method of the earlier rulers of securing resources by means of currency debasement. In the present century this power has been used for mobilising resources for fostering economic growth. But it has also been used for other purposes. Deficit financing in this way can provide a powerful and effective lever, in place of or as complementary to taxation, if savings are not adequate. We shall soon examine its potentiality and conditioning factors.

30.5. The limits of the manageability of money.—Money, however, is not a completely passive and neutral medium for the automatic or a guided working of the economy. If the water of a sea were completely free from the action of wind, tide or currents, it would be a neutral medium for the navigator. But if these phenomena are present, they are independent variables to be reckoned with by the navigator apart from the behaviour of the boat itself. Our analysis at many places brings out how money, like the sea, is subject to the action of independent variables and may behave in ways not desired of it. The outstanding example of this behaviour is that the value of money may move up and down as a result of one or more causes which may not be completely amenable to control even when the unpredicable behaviour of the mining of precious metals has been eliminated by means of a managed currency.

Our mention of the sea as a modium being subject to the action of independent variables has got a definite significance. When economic literature refers to the independent behaviour of money, it should not be taken to mean that, in some mysterious way, money has got the power to function on its own account. All that is meant is that money has started behaving in a way not wanted by the monetary authority. This may result from the behaviour of the consumers in relation to their value decision between the present and future use of money, the behaviour of the entrepreneurs or the behaviour of the banking system, and so on.

The question, therefore, resolves itself into the ability of the monetary authorities to control all the variables of the monetary system in a free economy. In a totalitarian economy it has been found possible to make money behave as a passive medium more effectively by severely limiting all the variables indicated above.

30.6. Monetary policy in the advanced countries and in India.—We have noted the different features and factors of the unemployment problem in the advanced and in the under-developed countries. Monetary policy in relation to unemployment, therefore, differs between them. There is, however, one common factor of a world-wide trend of growth and a world-wide hunger for capital which links the problems of these two classes of the economics.

Coming to the differences, we find that in the western countries the task facing the monetary authorities has been to develop and build up an arsenal for fighting recession on the one hand and inflation on the other. This is necessary because instability is inherent in growth on account of anticipations, periods of maturity of investment in capitalist production, changes in the structure of demand and the consequent imbalances in production and in cost-price relations. It is this class of factors creating lapses from the normal level of employment which the British

White Paper recommendation of 1944 or the Radcliffe Committee in 1959 sought to deal with, or against which the Employment Act of 1946 of the U. S. A. provides.

In India, the problem is of finding real resources as well as of allocating them for the purpose of growth by special measures whereas they are a part of the self-acting processes of the economies of the West. Measures, therefore, have got to be adopted which involve deficit financing apart from the use of fiscal instruments in the underdeveloped countries.

It has, however, got to be noted that an expansion of the volume of money with the public would become necessary even without any large developmental schemes if the economy is growing and the depressing effects of a stationary money supply cramping growth on account of falling prices has been felt. A normal growth in the volume of production, employment, consumption, saving and investment would itself create demand for money which has got to be met by the banking system and the state even without any planned and forced growth. The difference between this situation and denoit financing is that in the former case, money supply is increased after the demand for it has made itself felt by the cramping effects of an inadequate supply. In case of deficit financing, money supply is increased in anticipation of the increase in demand and advantage is taken of the situation by harnessing the productive resources in form of labour and raw materials for creating growth. From the point of view of motivation, however, the objective of growth comes first; and it is incidental to the growth that the money supply soaks into the increased production and the intermediate stage of inflation is eliminated. The duration of this intermediate inflationary stage depends on the period of maturation of the original schemes of production. The schemes, however, may constitute a regular flow and keep up the stage of inflation parallel with a rapid pace of growth.

30.7. The role of money in providing stimuli as well as sustained force for growth and employment.—The role of the invention of money in economic development has been rightly likened to the invention of alphabets for the growth of c mulative and heritable knowledge, culture and civilisation. Money enables the value decisions of individuals to be worked out, formulated and expressed in terms of a common factor or denominator of the behaviour of everybody and of every transferable commodity. It is thus the link knitting the individuals into the market economy. In this way a concrete instrument is provided not only for measuring motives but also for activising and utilising the motive force of men. It then follows that money may be used for imparting special stimuli to the economy apart from enabling the economy to function in the routine manner both for sustenance and growth.

We have referred to the function of money as providing stimuli at different places in this Report. Before we go into further details of this function, we may elaborate the idea contained in the last paragraph of the last sub-section and see how a stimuli for growth may be imparted by a positive monetary measure. We also propose to show that the usual inflationary period of deficit financing can be shortened by appropriately structured plans of development in which schemes of rapid maturation are sandwiched between those requiring longer periods. Below is an example of such a measure.

We may make a calculation of the total quantity of additional food supply required for the present and for the annual growth of population to provide a minimum of 2,500 calories per head per day. We may then estimate the quantity which can be added to the food production if the outturn per acre could be screwed up to a modest standard of a midpoint between the average outturn and the outturn of the best farmer even in the same village. Finally, by calculating the quantity of money which can soak into this total additional outturn, we can arrive at the figure

of money which can be put into circulation without causing prolonged inflation. So, if our agriculture could respond to the stimuli by higher production to soak the amount of a given deficit financing in the industrial sector, it would be easily shown what new industries might be financed for the expansion of capital goods industries and overhead economies in order to provide the foundations for the multiplier or proliferation effects in the economy for creating expanding avenues for production and employment. This argument is based on the fact that in an undeveloped economy, the initial increase in incomes creates more demand for food and other necessaries of life.

In preparing the plan of the structure of the economy with the proper ratio of various heavy, medium and light industries, agriculture, and so on, it should be possible to reconcile the objective of an anti-inflationary structure with the objective of the dynamics of consumption and with a compromise formula of the structure attaining the optimum conditions for the process of growth. Thus from the last point of view, large investments in heavy metallurgical, chemical and engineering (machine making including electrical power house plants) industries and heavy investments on overheads are necessary. But all of these are slowly maturing enterprises and their products would take time to come into the market and help to restore the equilibrium of commodities with the purchasing power already let into the economy for deficit financing. There is no doubt that if we look to our plans and go into the reports of the different bodies, we would find that all these points have been kept in view in structuring the plan. It is our view, therefore, that it is more due to the intractability of the human and material factors of growth than to the monetary policy that our economy has been subjected to the creeping inflation of the last few years.

31. ECONOMIC MOTIVATION: INDIVIDUAL ATTITUDE AND OUTLOOK.

31.1. The economy is operated by the motivation of individuals.—After the success of the Soviet Planning in economic practice and the acceptance of the Keynesian revolution in economic thought, aggregative and macro-economic thinking has become so pervasive that there is a real danger of the submergence of the individual even as a mere concept. The individual has already been swamped to a great extent by and size of the economy and liv the the growing integration functions of state. We have been so far analysing of the size and economy as operated through the macro-variables because both the consumers as well as the small entrepreneurs are now dominated by the market. But ultimately the economy is worked by individual decisions. In place of the small entrepreneurs of the classical economists, we now have the large financers and managers, or civil servants as fiduciaries. The importance of individual consumer behaviour in the aggregate in relation to consumption and saving has already been noted. Since the last war, the subject of worker motivation has been gaining recognition. In the backward and newly developing countries, the attitude and outlook of the large number of small farmers and craftsmen towards work, income and progress is a very important factor in the process of growth. We are aware of the extent to which the progress of our economy is being held up on account of the outlook and attitude of the Indian farmers.

In the economy of today the changed and changing economic relationships also account for the changes in the constituent elements of attitude, outlook, motivation, reaction to stimuli and behaviour. Both in the economy and in government, decisions are taken by fiduciaries. In a way, even the workers handling costly machinery are fiduciaries. Another feature of large-scale enterprises is the hierarchic chain of fiduciaries. For all these reasons the sense of individual responsibility, trustworthiness, discipline, capacity for team work, attitude towards employers, who themselves are

fiduciaries in most cases, are very important. The increasing value of the capital outlay per head of the worker and the increase in the demand on initiative and trustworthiness, which the costly appliances and materials entail, should make us look upon even the worker at the bottom from a new point of view. In the entire economy as in the administration of the state itself, large-scale mass production would have been impossible in spite of technological advances if the supply of honest fiduciaries were absent.

- 31.2. The composite personality of the individual in a modern economy and society.— For the most part we have been able to conduct our analysis on the basis of the variables of the aggregative economy and have not gone down to the basic microvariables of the individual consumer preferences and marginal utility. But we have often referred to the individual value judgments as initiating forces or as responses to stimuli. Both these aspects are important. With regard to the latter it may also be noted that the adaptation of man to his environment is not a mere passive act as in the case of the lower living organisms, but the result of value judgments for which he is responsible. This is why economics is different from ecology. The individual is a multi-decked personality with a core of individuality which is unique and not like that of any other individual. This core contains the seeds of progress in proper co-ordination with the other parts of the structure of the personality. It is the function of the social environment and of education to develop and also harness it without smothering it. It is a delicate process, but is necessary. Unless it is properly co-ordinated it is magnified into intractable idiosyncrasies. If it is tampered with too much by propaganda and brain-washing, this inner core of individuality is completely eliminated. To this core of individuality are integrated the components of personality as developed by the process of socialisation through the influence of the family, the kinsmen, the neighbours, the school, the factory, the state, and so on. The individual attitude and behaviour is thus shaped by the technical and social environment, his inheritance of custom, manner and knowledge. The modern man has got to acquire an enormous and growing load of knowledge and habits in order to become an effective functionary. The load of knowledge carried by an average school boy is heavier than that which weighed on Aristotle, Galileo or Newton. Yet, it is remarkable that the inherited layers of the structure of the individual have never completely smothered the inner unique core in mankind. But for this phenomenon, it would not have been possible for human reason to break through the prison of scholasticism and the regimentation of the Church in Europe.
- 31.3. Plasticity of attitude.—Attitude, however, is not fixed and rigid. It is very much a product of outlook, of belief and faith. Hence, attitude is susc ptible to propaganda and education as well as to indirect unconscious modification as a result of environmental changes. The average American worker looks upon management as a co-partner partly with certain parallel interests as well partly with conflicting interests. He does not want the state to become the employer but to be a neutral authority to be made use of when the interest of labour is in conflict with that of the management. He would look upon state capitalism as a form of tyranny in which the powers of an employer are reinforced by the regulatory authority of the state. On the other hand, it is not a result of mere propaganda but also of past experience that in the communist societies, the efficiency of workers is reported to have increased owing to a change in the basic attitude towards the state as employer. The worker now feels that he is not working to swell the profits of private employers but for the welfarc of the entire community and of himself.

For reasons which we may not be knowing fully, or about which we might be feeling helpless, the one thing in which we have failed so far in all our efforts for economic growth is the attitude of the farmer and of the worker in Ind a. So far as we

know, it appears to be easier to activise them temporarily by emotional appeals than to mould their attitude as a durable factor of behaviour. The state is trying different methods of creating new attitudes by means of social education, co-operative farmers' forums, development of trade unions, workers' participation in responsibilities, and so on. These are the only methods open in a democracy. The alternative would be regimentation.

- 32. Interdependence of the Growth of National and International Economy.
- 32.1. Employment in relation to international economic growth.—As most of our analysis and recommendations on employment as a function of economic growth are concerned with the growth of the national economy, it is desirable to note that the interdependence of national and international growth is taken for granted. In the following sub-sections the development of this interdependence has been brought out. The following basic features of this interdependence may be noted.—
 - (1) The field of knowledge is so vast and the scope of technology is now manifestly so endless that growth in every country depends on the pooling of technical knowledge and the diffusion of skill all over the world.
 - (2) In the long run the co-ordination of national economies enlarges the scope for the growth of each.
 - (3) In spite of many limitations still imposed on international trade for short run results, global production and global demand always tend to seek international equilibrium.

We shall see how the interdependence of growth and employment on a global scale is being increasingly realised and shaping international economic relations today.

- 32.2. International contacts and stimuli initiating growth.—While the early development of land utilisation and agriculture depended on local factors, contacts among the communities even during the ancient civilisations were powerful factors in the diffusion of technology and culture. Anthropologists have discovered evidence of regular long distance commercial contacts even before the more developed contacts of the Neolithic and the Bonze Age. But in spite of the diffusion of culture over wide areas, the stock of inherited knowledge and art was too limited to become the basis for rapid growth, specially in the pre-literate society. Cultural diffusion was easy among the Mediterranean civilisations, and the Alexandrian world order stimulated it very powerfully. But both in the Hellenistic and in the Roman world we find less evidence of technological cross-fertilisation than of mere commerce. It was the Arab civilisation striding across the entire old world that transported not only goods, but also science, art and technology from India and China to Western Europe. This diffusion transmitted the first stimuli to the growth of crafts and technology to which a multiplier force was imparted through the stimuli to the economies of the city states of by the Crusades and by trans oceanic commerce and in-flow of bullion from the New World to the Atlantic countries.
- 32.3. From occasional international stimuli to regular international commercial and economic relations.—From the sixteenth century onward, different parts of the world were brought tegether by routine commercial relations and a regular pattern of world economy began to develop. However, do wn to almost the present times, the relations between the developed and the backward countries were parasitic and exploitative as indicated by the terms colonial economy, imperialism and economic imperialism. Anyhow the world economy was getting integrated, but the relationship was not symbiotic.

The European powers always shaped the working of the economy of their colonies and dependencies to provide the requisites for the sustenance and growth of their own economy. There was, however, some beginning of growth in the backward countries in so far as they were contributory to the growth of the dominant partners. It was in this way that some stimuli were imparted to economic growth for the production of agricultural and other raw materials in India, the East Indies and Africa.

Even in the commercial relations of the independent countries among themselves, the policies always aimed at immediate gains and manifested alarm and obstructive policies against development in the rival countries. It was this system of international economic relations which moulded the terms of the peace treaties and the economic clauses after the First World War. It was also responsible, to a great extent, for the Great Depression of the thirties and its continuance right down to the next war.

32.4. The ideas, theories and practice of a reciprocating world economy.—The Free Trade policy of Britain after the Industrial Revolution was one-sided. However, Adam Smith had looked upon an interdependent world economy as a natural order to be fostered on account of the gaps in the national economies according a design of Providence. But the unequal development of the different parts of the world led rather to the growth of economic nationalism than to a reciprocally sustaining system of growth. Perhaps this was inevitable so long as the recent optimism of the advanced countries over technological advance and the new attitude of the backward countries were absent. The League of Nations had made serious efforts to build up a body of theories and certain systems for world economic co-operation. But the political rivalries and the weakness of the League prevented any material results.

The Second World War again brought together the leading countries of the world against another equally advanced set of enemies. The interdependence of the national economies for sustenance and growth had by this time been more clearly understood, specially in the U.S.A. in the light of the results of the post-Versailles policies. This new attitude of the victorious allies led not only to the founding of such organisations for world co-operation as the U.N.O. and its affiliated bodies, the World Bank and I.M.F., but also to the immediate measures for the rehabilitation of war-shattered countries of the allies as well as of the enemics. The Marshall Aid Programme, Mac Arthur administration of Japan and the Colombo Plan marked a revolutionary change in the outlook on world economy which should not be interpreted wholly in terms of sanitary measures against communism.

32.5. Recent developments in idea and practice.—During the first few years of the post-war period there was a clear recognition of the need of freeing the dependencies from political shackles of colonialism and from economic imperialism. It was partly motivated by the East-West rivalry, the Soviet Union seeking to win the good-will of the dependent countries so as to prevent their being used as bases against itself; and the U. S. A. seeking to develop them so as to make them safe against communism.

It is remarkable how even this line of thinking has been modified considerably during the immediate past after 1957. East and West are no longer thinking primarily in terms of making the world safe either for communism or against it. There is now a genuine realisation of a basic unity of the world economy. All the implications of the recent recession in America and its effects on the advanced and the backward countries have been unravelled in the context of long range effects. It is remarkable that the American recession leading to the fall in the prices of the primary commodities was felt not to be in the long run interests of either the U.S.A. or the countries of Western Europe which stood to gain immediately by their

33.1. A concrete example of the working of employment—generating and self-propagating economic forces.-We may now illustrate the foregoing analysis by means of a concrete example. Suppose that the District Officer of Purnea or Saharsa has got to spend a certain amount of grant for relief through hard manual labour. He now judiciously selects the digging or deepening of a number of tanks in a cluster of villages which are otherwise suitable for growing jute but were not adding this activity in their cropping scheme for want of tanks or channels for retting. So, if the project is completed, an immediate and direct relief is extended to the labourers. Next, their time and working capacity, which might have otherwise gone to waste, is converted into a durable productive asset for the locality as a whole. And from this point we may see that two chains of reactions may be set into operation as a result of this initial stimulus. The first is that there is an increase in the purchasing power of the locality to the extent of the wages paid out. This may stimulate local economic activity immediately and add to the consumable material resources if the additional demand makes the fisherman, the toddy-tappers, the weavers, and so on, work more. So, to the extent to which all these material requisites of life are added to the previous flow of these, it is a net addition stimulated by the initial income created by the relief employment. We may, however, note that unless this increase in the demand for these goods by the labourers, who have acquired additional purchasing power, evokes the response of the producers, it would simply amount to an increased demand for the same quantity of goods and would lead merely to an increase in their prices. Hence the existence of unutilised productive capacity, and of enterprise responsive to economic incentive, is necessary for making the entire economy operate with normal health and for setting into operation the self-propagating economic forces of growth. This is the significance of the remark just made that all economic forces operate through human attitude and efforts and normally an incentive is expected to produce efforts. The second chain of reactions is started when, as a result of the excavation of the tanks, jute growing is fitted into the cropping scheme of the locality and leads to a permanent increase, year after year, in the utilisation of mandays which were so far going to waste during those months and weeks in which previously there had been no demand for labour and no disbursement of wages. And against the wages paid out for additional ploughing, weeding, harvesting, retting, cleaning, baling, and so on, there is the addition of a given quantity of jute to the other produce of the locality making a further addition to the income of the farmers, middlemen, craftsmen, cartmen and so on. It is in this way that the chain of economic stimuli is propagated and the initial employment becomes employment generat-On the other hand, if the relief measures consisted of building houses and parks, the employment is simply employment absorbing even though the result is an addition to the amenities of life.

34. THE OBJECTIVES AND ACHIETTMENTS, THE STRAINS AND THE STRESSES OF A GUIDED AND FORCED ECONOMIC GROWTH.

The following features, which we are enumerating here briefly, were present in the growth process of the economics during the preceding era of l is ez-faire and slow automatic growth in the Western countries too. But they are more obvious to-day in the guided economies.

34.1. The crucial role of investment.—Investment is needed to embody higher technology and increase productivity per worker and in the aggregate with a view to raise income and investible surplus immediately and employment and standard of life in the long run. The normal saving in the backward economies, even in the stage which we have characterised as one of passive response to stimuli in which the production of raw materials for the world market and the manufacture of some consumer goods were stimulated, has been estimated variously at 3 per cent to 5 per

ability to buy their raw materials cheaper. They found that it was of not much use if they gained a few points in their lowered cost of production on account of cheaper raw materials if the purchasing power of the countries like India was seriously impaired by the price recession of the raw materials. They calculated that the entire amount of the value of the financial aids they were extending as loans, gifts or subsidies to the developing countries were getting nullified by this fall in the prices of their exports. It is a clear indication of the revolution in the line of policyframing economic thinking that the advanced countries have been making financial help to the backward countries a part of their routine social accounting. The general view under discussion has been whether the setting apart by every advanced country of even three per cent of the national income, year after year, for financing conomic growth abroad would be adequate. It is remarkable that the Radcliffe Committee (1959), while making recommendations on the management of the currency system in the U. K., has laid down certain criteria for judging about the performance of the economy, and one of the criteria is the capacity of the economy for a routine contribution of funds and capital for the growth of the oversea economies. We have also noted how the advanced countries have been feeling worried over the growing gap between the growth of their own economies and the rate of growth in the newly developing countries in spite of the vigorous efforts of the latter.

It has been recently realised that the financial and technical help extended by the I. M. F. and the World Bank and the Colombo Plan are not adequate to meet the enormous world demand for growth. Hence the U. S. A. established the Development Loan Fund in 1957. The Export Import Bank has been participating in the economic development of other countries for a very long time. It has now expanded its functions without attaching any political strings. The U. N. O. also has created a Development Fund, and the year 1959 saw the establishment of the National Development Association in the U. S.A. Similar other permanent or special purpose organisations are being set up in other countries while the functions of some older institutions are being liberalised. That even France, known for the tradition of alcofness and conservatism in international relations, should be calling a conference on the subject in Paris in 1960 shows how rapid and strong the trend of realisation of the economic interdependence of the forces of growth of different countries has been.

33. EMPLOY MENT GENERATING FORCES OF FCONOMIC GROWTH AND THE SELF PROPAGA-LING BEND OF EMPLOYMENT.

In the last few sections we examined the nature and factors of economic growth. We have also looked into the operation of the economy as ultimately depending on human motivation. We have frequently formulated that employment is a function of growth. In view of its importance for our economy with such a load of redundant labour force, it is necessary to emphasise that in a normally healthy economy growth leads to employment, employment leads to growth, and so employment itself generates further employment. It means that under certain conditions, any added quantum of employment or the employment arising in the usual process has got multiplier or self-propagating trends. This multiplier trend may show different degrees of strength according to different conditions.

A distinction has been made by us between employment generating and employment absorbing categories of employment in this respect. There are certain processes of employment, or deliberately introduced measures of employment, which tend to create further employment. These constitute the nodal points from which economic growth proliferates. Thus even the relatively small quantum of total employment in the heavy industries creates successive strata of employment. On the other hand, employment in commerce and servicing is generally employment absorbing employment.

cent of the national income. Even this is possible only because of the inequality of income and the saving of the entrepreneurs. But it is just sufficient for preventing a fall in per capita income on account of the increase in population at the rate of 1.5 per cent to 2 per cent per annum. So even at the optimistic rate of 3:1 capital output ratio, the entire investment would be absorbed in the maintenance of the per capita income leaving little for raising the standard of life or for further saving for investment.

- 34.2. The foundations of the self-propagating process of growth.—A plant begins to grow on its own account only after the seed has sprouted and struck roots below and thrown out leaves above in order to draw nutrition from the soil and the air. Till then it is nurtured by the food stored in the seed. Thus it is only when the economy is able to save beyond the 5 per cent needed for maintenance out of its annual national income that it embarks on the process of automatic and self-feeding growth. Evidently the rate of growth would depend on the quantity of this excess over 5 per cent. In a backward economy the standard of productivity and living is so low that this process of saving and investment is very painful. But the surplus has got to be created. We have seen how, in the era of the Industrial Revolution in the West, it was derived from commerce, etrepreneur's earnings and profit inflation by exploiting labour. Moreover, saving was made possible by the existence of inequality of income. In the Soviet Union also, the investments in all the overheads of the economy and in the industries have come out of the exploitation of labour in the fields and the factories for the last three decades during which consumption has been stinted. In the democratic countries the problem is more difficult because labour is assertive. But the phenomenal recovery of West Germany was as much due to the willing sacrifice of the labour force as to the existence of skill and technology. Moreover, in the backward countries the scope for taxation also is limited and it also discourages private enterprise, as we have seen. But there is no way out of the use of all available methods for mobilising capital resources by every available method for financing growth both in the public and the private sector.
- 34.3. Rapid growth of population.—The vicious circle of small investment, low productivity and meagre capacity to save is further aggravated by a rapid rise in the growth of population in the transitional phase of growth for reasons which have been examined in another section. This factor further accounts for the fact that the gap between the standard of life between the newly developing and the already developed countries has been growing rapidly. Long before the per capita income of India is expected to rise from about Rs. 250 at the beginning of the fifties to about Rs. 300 per annum in a decade, the per capita income of the U.S.A., U.K. and West Germany rose by 20 to 30 times of this difference. We have to examine how investment and economic growth alone will not solve the problem of breaking through the vicious circle unless vigorous effort to check improvident motherhood is adopted.
- 34.4. The high cost of industrialisation in the transitional stage.—Close examination of the factors of industrialisation and growth shows that cheap labour is not necessarily an asset and does not provide much set-off against the high cost factors for building up the modern economy for reasons stated below:—
 - (1) The overheads of the economy consisting of the transport system, power supply and so on which are highly capital-intensive, are under-developed. This factor along with other ones means that the external or environmental economies of the individual enterprises are lacking and keep up the cost of production.
 - (2) Capital appliances have got to be imported and set up at a much higher cost than in the advanced countries. The new countries, however, are able to gain from the costly experiments which the pioneer countries had to undertake.

- (3) Skill for maintaining and operating new plants has got to be acquired by practical experience. In the meantime the operational cost is higher. For example, the cost of maintaining the pot-lining of the alumina reduction chamber by skilled workers is less than half of that by less experienced hands. Break-downs are more frequent and repairs may take time in all the newly established plants and industries.
- (4) The technical personnel requires not only training but also experience. For other reasons also productivity per worker is low.
- (5) The process of industrialisation in general calls for an increasing number of entrepreneurs, managers, supervisory staff, cost accountants and other office staff. They take time to gather experience.
- (6) Whether the first emphasis is on the basic or on the consumer industries, the growth of a structured industrial pattern with basic, ancillary, derived and end products industries takes time. Meanwhile uneven growth is unavoidable and means excess capacity, bottle-necks, and so on, which add to the cost.
- (7) Forced economic growth with forced savings and deficit finance is unavoidable, as we have seen. So inflation may not be avoided completely. Moreover, the present world-wide spurt of growth itself has created a global hunger for capital and a global inflationary trend. Hence the money cost of plants and equipment goes on increasing for all new countries.
- (8) In all the newly developing countries the state has been forced to take on responsibilities for planning, guiding and even managing economic enterprises without any previous experience. Evidently the system of trial and error means higher cost.
- (9) But for the new outlook of the developed countries on the growth of world economy, progress in the backward countries with their dependence on foreign capital, plant and skill would have been difficult. The scope for earning foreign exchanges in a competitive world market is limited on account of the higher cost of production of the newer countries. Moreover, even a slight recession in the developed countries tends to turn the terms trade against the staple export commodities of the backward countries.
- 34.5. Shift to a higher ratio of production of capital goods.—As an economy develops, the ratio of investment for producing capital goods increases. This is not a transitional phase and the progress of technology has added to this trend and may further accelerate it in future. The result of this trend is a higher and increasing productivity per work hour and an increasing per capita income along with an increasing demand for saving for investment.

The distributional aspect of this trend is interesting. While per c pita income in weges and salaries tends to increase absolutely, the relative share of property in the total of national income does not fall on account of the increasing volume of capital resources in production.

34.6. I cre so in productivity of labour per se—The assessment of increase in the crude rate of productivity per work hour as a result of technology, higher capital ratio and other factors is easy enough. But efforts have been made to measure the increase in productivity of labour per so, all the other factors remaining constant. We have not been able to go into the details of this subject. Productivity per worker, however, is bound to show wide variations even with the same technical equipment. The question of worker productivity is not a new one and has been the subject of

research for a long time in the U.S.A. It received, serious practical attention in the munition factories in the U.K. during the First World War. Recent approach is on a different line from that of the system of Scientific Management which aroused the hostility of labour in the U.S.A. We are glad that the Government of India and the Planning Commission have become serious on the subject during the last two years. The Committee's view on the subject is that research in, and practical measures for, increasing productivity is necessary in the interest of employment. We are further of the view that every effort should be made to associate organised labour in the movement with a view to make it effective.

35. Self-acting or market economy, guided economy and controlled economy.—We have been frequently using the terms self-acting and guided economies. It is necessary to clarify them as also be explain the meaning of controlled economy.

The term self-acting economy does not mean that the human agency is eliminated. We have already seen how every factor in the economy is operated by and through human agencies whatever the system of the economy, whether autonomous, guided or or controlled. The difference lies in the methods as well as certain modifications of the objectives. Thus in the controlled economy the human agencies are the fiduciaries of the people and in the market economy the entreprencurs are their own masters.

The self-acting or market or price-system economy is built up on the basis of the freely expressed wishes or value judgment of the individual consumer without any dictation or regimentation from any outside agency or authority. It implies that these preferences of individuals for certain parcels of commodities in varying quantities demanded by them are compounded and aggregated into the market preference; and that these market preferences expressed through relative prices are like orders to the entrepreneurs conveyed through the middlemen to produce a certain assortment of goods. It further means that the entrepreneurs, large and small, who take up these orders do so on their own free choice and according to the structure or system of relative prices. If the price moves in favour of or against any particular commodity, it is an order from the market or consumers to produce more or less of it by redistributing the productive resources. This is why it is called the market economy or the price-system economy. It is also called the competitive system. It means that the economy is run according to the wishes of the consumers and the freedom of the entrepreneurs to undertake production according to their interpretation of consumer choice as the method of earning profits which are the wages for their work.

At the other extreme would be a controlled economy in which some agency of the state would undertake value decisions for the consumers and then plan production, allocation of resources and distribution of goods according to some criteria of its own supposed to be more in the interest of the people.

Both of these extremes are theoretical models and valuable concepts for analysis, but would be rare in the real world. In between these two extremes would come various shades of guided economy, some closer to the first model and some closer to the second model. We may now see how these extreme models make compromises with each other in practice.

Even in the self-acting or market economy, there are occasional controls or permanent guiding institutions. We are familiar with price control and rationing in emergencies in the market economies. Next, there are permanent codes for regulating the behaviour of consumers and entrepreneurs and for the working of the economic factors as well as the institutions of the self-acting price system. All of them arise out of the imperfections of the price system including an inherent threat to the competitive

market economy by the free operation of the market forces themselves. Next, in the succeeding sub-sections we shall examine how every economic system requires some guidance in view of the flaws in their performances. But the most marked feature of the free or market economy, even when subject to guidance, is that the objective of the guidance is to preserve and strengthen the market system against its own self-liquidating trends which we shall see.

Similarly, if we take the Soviet economy as the extreme pattern of a controlled and totalitarian economy, we find that it has permitted or tolerated many compromises in the system. It is uncompromisingly committed to the principle that no private person can be the employer of another person. All production and marketing is, therefore, under state control. As very small productive and marketing activities cannot be taken up conveniently by the higher state agencies, the local soviets at the bottom or co-operative societies run these enterprises. The co-operatives are, however, more like state agencies fitted into an overall pattern than organisations built up from below.

Yet the consumers are free to express their preferences within the price system structured by the planning authorities though not by consumer choice. The consumers may own durable properties. Again, Stalin had to make a compromise with the intense individualism of the peasants and allowed the cultivation of homestead farms for producing goods for consumption and even for sale. Thus a free market, side by side the state market, has been allowed to grow up between producers and consumers. Again, a thin layer of black market also has been working on account of the scarcity of consumer goods.

Chinese communism has been trying to be more communist than even the Soviet system. But Yugoslavia worked its system nearer the Syndicalist model of making the workers operate individual enterprises within the overall plans of the state. Moreover, the small enterprises of harbers, laundry-men, and so on are allowed freedom to work. The Gomulka type of Polish economy, while nationalising the industries, allows considerable latitude for free enterprise in the peasant economy.

We may now turn to an examination of the performances of an economy and the reasons which necessitate its guidance.

36. THE NEED OF GUIDANCE OF THE ECONOMY.

36.1. The price indicator.—In view of the function of the free or the managed price system as the regulatory factor in any economic system, a reference to its nature is necessary. In a free economy, the price offered collectively by the consumers for each commodity separately is the indicator of their value decisions, the relative supplies being given, The income of each consumer being limited, he distributes it among his different purchases according to his relative marginal value judgment. On the other hand, the price per unit of each emmodity must be equal to the cost of production, and neither more nor less. If the price is less than the unit cost of production, it would not be worth the while of producers to produce it. Hence its supply will fall and the price will rise by eliminating both the marginal producers and marginal buyers. the resources would be transferred to other lines with a higher buyer preference. On the other hand, if the price is more than the cost of production including normal profits, producers would transfer resources to it. It is in this way that the price system regulates the working of the economy through the price indicator. It would noticed how it is for**c**e \mathbf{of} competition also be \mathbf{the} brings about and how the freedom of the these changes is necessary for the working of the self-acting economy. Price system under different economies, price as the regulator, price as the result of regulations, price as dependent and independent variable, the concept of fair price, and so on, still remain to be

analysed systematically with the thoroughness with which classical economics has presented the theory of market price, short period normal price and long period normal price. Some examples by way of illustration may clarify this stand. In a controlled economy, the authorities would be concerned with the question of the recovery of the entire or aggregate cost of production only and not with the cost price equilibrium of each industry or each enterprise except for the internal purpose of checking and auditing efficiency. So the entire cost is pooled, and consumer or retail prices may be fixed within this aggregate cost according to the wish of the authority to permit, encourage or limit the consumption of each commodity separately. Similarly, wherever there is an element of sectoral monopoly, even a private enterprise may adopt this method of allocating the overall cost among different commodities within the limits of buyer or consumer resistance. The case of the fixation of railway rates is an example, and buyer resistance is taken into account by the principle of what the traffic will bear. Then, even in the normally competitive market, the power of control is shown by the present system in India of the difference between the selling and the retention prices of seed.

36.2. The performance of the econ my.—There is nothing in the principle of the formulation of criteria or norms for testing the performance of an economy to which positive economists should object any more than one should object to the framing of criteria about the quality of any commodity. It is, of course, possible that the inclusion of non-economic criteria should be objected to by economists. But man's value judgment is not rigidly compartmental and is a comprehensive process. It is desirable, however, to formulate the economic and social objectives separately.

Generally the criteria are prescribed for judging about the performance of the market economy only. We have modified them so as to provide the criteria for any modern economy, whether free or guided. These are:—

- (1) The economy should function according to the wishes of the consumers and produce the commodities in the proportion demanded so as to maximise satisfaction and maintain price-cost equilibrium. The price system should faithfully reflect shifts in consumer preferences.
- (2) The economy should produce each commodity with the minimum of real and money cost.
- (3) It should a llocate the productive resources among different channels so as to achieve the last two objectives by distributing the productive resources among different channels so as to render each rupce along different lines of productive investment produce the same amount of satisfaction.
- (4) It should distribute national income among individuals in such a way that satisfaction is maximised.
- (5) It should provide a high and stable level of employment.
- (6) The economy should be eapable of self-sustained and autonomous growth in the long run.
- (7) The economy should be able to achieve growth at a rate which should provide full employment at a progressive standard of living for the growing population.
- (8) The monetary system should not at least warp the working of the price system. It should contribute to the growth of the economy.
- (9) The economy should combine stability with progress and should be self-acting as well as tractable to guidance.

- (10) The economy should be able to function without calling for any permanent encroachment on individual freedom.
- (11) It should contribute to, and not hinder, the development of the global economy.
- 36.3. The flaws in the performance of the economy and the necessity of guidance.— It is not very easy to deal with such a vast problem or set of problems arising out of the flaws in the working of the economy which have been the subject matter of much thinking and the formulation of many institutes and laws by the seers, sages and prophets of old, of mass revolts and of all the political and economic ideologies of history. We are, therefore, confining ourselves to the consideration of such of the flaws as are relevant for our investigations. Even here we cannot do more than present a catalogue of these flaws without claiming it to be exhaustive.

We find that there are flaws and deficiencies both in the routine work of an economy as well as in the processes of growth. We find that the machinery of the economy has got delicately balanced interconnected pieces which require constant intelligent care, and yet are likely to go wrong when handled roughly, or when not handled at all at the appropriate time. We shall be examining in a subsequent section the difficulties of economic diagnosis and prescription necessary for guiding an economy. In this section we are confining ourselves to a brief analysis to show that the complexities of a modern economy working for sustenance and growth call for the very difficult art of intervention and guidance in right time and on right lines, and yet of letting the self-acting forces work to the maximum. The economy has got its own inherent system of checks and balances, its own motive power and brake, all working through the motivation of the human agencies operating the economic forces. A system of social measures and endeavours has got to make them produce the maximum of results. Even a controlled and a planned economy is operated through organisations which are expected to be self-acting, though tractable.

- 36.4. Types of interventions in the economy.—It might have been more logical to examine the lines of intervention after examining the flaws in the working of the economy. But in order to make the treatment brief, we propose to examine the flaws along with the measures of intervention. We are indicating here first the categories or types of intervention or guidance.
 - (1) Interventions may aim at maintaining the market forces as was originally formulated as the limit of state interference by Adam Smith. These are measures, like the maintenance of competition, to let the price system operate.
 - (2) Interventions may seek to utilise individual motivation and the market forces for achieving objectives which the market may not formulate automatically. Tariffs, subsidies, price support measures, and so on are examples.
 - (3) Interventions to counter the market forces: In another sub-section we are examining the aberrations in the working of the economic forces. Most of them call for countervailing measure.
 - (4) Measures to replace the market forces: These may arise out of the flaws and deficiencies of the economy in general, or may be motivated by ideology. They may range from substituting state measures in specific cases in a guided economy to the scrapping of the price system altogether except as an accounting system. The system of procurement and rationing, when the alternative of price control in a scarcity economy does not succeed,

is one example of a partial supersession of the price system. State capitalism is an example of a more comprehensive substitution of the market economy. Chinese Communism is an example of a more drastic suppression of the market.

36.5. The theory of consumer sovereignty.—The argument brought out in this sub-section is of fundamental value. The individual citizen as a voter is at the mercy of every minor bureaucrat, manning the administration in the day to day world of reality. But the entire theory and practice of democratic state is based on the concept or norm, and some would say a working fiction, of his being collectively the king-maker who elects the Parliament, which elects the ministers, who run the administration. If this working fiction of the voter as the king-maker is dispensed with as an unreality, there is autocracy and dictatorship. Similarly, if the working theory or norm or starting point of regarding the consumer as the ultimate decision taking and value judging authority is abandoned, the entire economy is detached from its mooring or base and the consumer value judgment is replaced by that of others, and there is an end of economic democracy and of the market. The economic policy in a democracy is, therefore, based on the theory that consumer's sovereignty is not only to be taken for granted but also to be fostered like the ultimate sovereignty of the voter, and that any flaws in the operational features of this working theory are to be met with and remedied in detail.

These flaws, however, are formidable in number. The large impersonal market has swamped the individual consumer as effectively as the large state has submerged the citizen. In detail, the consumer is at the mercy of the middlemen. In a large market, the middleman has ceased to feel the sense of responsibility of the days of the craft guilds or of the on-the-spot producer and consumer relations. In a large modern economy prices are administered by the manufacturers and there has recently been a belated awareness of consumer grievance against what is regarded as a conspiracy of the management and labour to squeeze the consumer. It may be recalled that in the West consumer co-operation came in as a countervailing movement against the small retailers. For all these reasons the state has to intervene to protect the consumer.

The consumer behaviour is known to be deficient in not being in conformity with the requirements of the macro-economy. He may upset it by saving too much or too little. It calls for state intervention of the Keynesian model to restore equilibrium between aggregate demand and aggregate cost.

The consumer may not be able to assess his own future needs adequately and social measures by means of pensions, provident funds, small savings and compulsory insurance have got to be provided. The individual consumer is not expected to take into account distant needs of future generations. The state has to rectify this deficiency.

36.6. Competition as the basis of the market economy is self-liquidating.—The market economy is synonymous with competition. Competition among entrepreneurs was expected to maximise production by motivating economical and judicious use of resources, and to maximise satisfaction by making the decisions of the entrepreneurs subserve to consumer choice. These results were expected to follow from competition among entrepreneurs for serving the consumers and so maximising their own profits.

Competition, however, in the large economy covering national and international markets of to-day, is more predatory than in the days of the localised producer-consumer relations. By its very nature competition eliminates the less efficient, and in the days of mechanised large scale production, successful competition is self-liquidating and leads to a monopoly or to the survival of a few large enterprises (oligopoly).

The self-liquidation of competition is a market trend. Evidently it is a price to be paid for more efficient production. The state, therefore, has got to intervene to conserve competition and free enterprise in order to maintain the frame-work of the market. This, again, is a delicate decision based on the compromise between the choice for high efficiency and for free economy. Another factor which the state takes into consideration in favour of market economy is that efficiency may deteriorate after competition has been eliminated. In any case, the state has to decide on the choice between maintaining competition or stepping in as entrepreneur in order to check private abuse of monopoly power.

36.7. The flaws of the price system.—The theory of the price system as providing the self-acting forces of the economy for the motivation of the human agencies, allocation of material resources and distribution of consumer goods is also unreal. It requires constant doctoring for firstly, preventing its collapse, and secondly, to make it work for extracting out of it the services claimed for it. The New Deal of the U.S. A. during the thirties was a clear example of the intervention to rectify the flaws of the price system in order to be able to conserve it.

Again, the price system does not, in every case, give an advance notice of what is required, but only indicates a discquilibrium after it has taken place. We do find that the market itself tends to develop prognostic techniques and devices like hedging and so on. But outside intervention also is often called for. Statistical indicators are used both in the free economy and in a guided economy. In a totalitarian economy they are used as substitutes for the price indicators.

36.8. The flaws of the price system or the economy in distributing national income.— The market forces distribute national income among workers, entrepreneurs and property holders according to the principle of marginal productivity. It is one of the most powerful operating factors of the market economy. But its operation is mainly static and it may not take into account either the long-range economic results or the maximisation of satisfaction. For example, the purely market force would not necessitate measures for long-range conservation of the working span of the worker's life. The employers may be actuated by social motives which is quite a different thing outside the market forces.

The marginal principle also creates surpluses or unearned incomes, inequality and other phenomena which call for countervailing social as well as economic measures.

36.9. The economy requires guidance for maximising production.—Every economy, whether free or socialist, has got to work in the twilight of anticipations in view of the time-lag between investment and production and the possibilities of shifts in demand. These anticipations are human judgments which are liable to err. Moreover, the forces of nature and matter are not completely tractable and the example of variations in agricultural production even in the technologically most advanced countries may be cited. For these reasons, there are frequent imbalances among the factors in the equation. The disequilibrating market forces tend to bring into operation the equilibrating forces like the vital forces of the human body producing their own curative reactions. But in a modern complex economy, they are not enough, and the system requires frequent but careful and restrained doctoring. The growing armoury of anti-recession and anti-inflation measures are examples.

Then, again, under-developed economies are so unorganised and lack even the over-heads and the hodal points for growth that the state has to provide an entire structure of the economy by planning. This may be looked into more closely.

36.10. The necessity of guidance for economic growth in the backward countries.—In the backward countries, national and per capita income are so low that the amount of saving is altogether insufficient for growth in the sense we have defined. Even a

start is made difficult on account of the lack of the accumulated overheads of the economy, and of capital and skill which the advanced countries have built up in course of the last two centuries and more. Hence, a guidance of the economy is absolutely necessary for giving the economy a push. This guidance has got to be continued for a long period to keep up the momentum, to rectify the imbalances of a rapid march, and to ceaselessly introduce social adjustments. Moreover, guidance is necessary even for building up the self-acting and self-sustaining forces in different sectors of the economy and in the integrated economy as a whole. Finally, in the adjustment between the national and global economy, backward economies need further guidance from within and from the advanced countries.

From what we have seen of the extent to which the market economy has been diluted by control and guidance in the modern economy, we can easily deduce that price is not allowed to act in the automatic way now. This subject still remains to be re-examined by economists in view of the developments during the present century. A new systematic theory of the managed and administered prices to supplement the classical price theory of the market economy is overdue.

37. Recent experiences of economic growth and employment in the important countries.—
The period of the last two decades of world economic history has witnessed the destruction of the war and reconstruction in a number of countries, a new spurt in technological advance and the emergence of a large number of newly created independent countries with their programmes of forced economic growth. The experiences of this period have got some useful lessons for us.

The policy of the democratic countries of the West has been to let the selfacting forces of the growth of the market economy to operate under appropriate guidance. They have, therefore, shown the usual visible and measurable quantities of growth, recession, employment and unemployment which are not so spectacular in controlled economies. These countries have sought to and succeeded in providing measures of guidance which partly come into operation automatically and partly require to be administered with a view to check recession and unemployment as well as to control inflation and hyper-employment along with the consequential cost spiral, imbalances and the succeeding unemployment. The U.S. A makes provisions for immediate tax relief and various measures for stimulating consumer demand in case of recession. On the other hand, if there is a threat of hyper-employment and inflation, the tax system and control of credit are serewed up. Morcover, public works measures are slowed down so as to reduce the pressure of the demand for them in the market economy. It may be explained that by hyper-employment we mean such a boom in economic activity that there is no further reserve of labour to be drawn from for further economic expansion and competition among entrepreneurs only pushes up wages without increasing the supply. Such a situation creates a sellers' market for labour and leads to laxity, inefficiency and inflation.

In the U.K., the post-war boom of reconstruction and recovery created visible hyper-employment and inefficiency until the desire for work was again stimulated by the development of new wants and the growth of the hire-purchase system. What had happened in the interval was that the great increases in wages had made the workers less willing to work regularly as the standard of living of the pre-war period could be attained even with less exertion. And then the great expansion of the hire-purchase system threatened an inflation which had to be controlled by the tightening up of the credit control.

The phenomenal recovery of West Germany was another triumph of the market economy. The take-off was easier than in a backward country because, although the factories had been destroyed by the war, scientific knowledge and technology, the skill of the workers and their habit of hard work as well as the tradition of loyalty

to the factory were there. The organising capacity of the entrepreneurs was also available. The Marshall Aid Programme provided the leverage for growth and the policy of the state provided the necessary atmosphere for an effective motivation. By wise fiscal system the state allowed all the profits to be ploughed back into the ecomomy. The workers and the managers were satisfied with a moderate level of wages. The result was that over 20 per cent of the national income continued to be invested for reconstruction and growth.

The Italian and the Dutch economies followed a similar course with a fine response and co-operation from labour. One result of great significance for the world has been that the old belief that exploitation of colonies and backward countries is necessary for a high standard of living in the metropolitan country was proved to be incorrect. Both these countries, and the U. K. also, have built up a higher standard of living after getting rid of their empires. One lesson of the Italian experience is of significance for us. The Vononi Plan made special provision for a more rapid economic development of the under-developed South. But the experience has been that the overhead advantages or external economies of the developed areas are so great that the developed areas have continued to make more rapid strides.

The experiences of Poland and Yugoslavia have some useful lessons. Polish Communism has conceded considerably to the basic strand of human nature that the peasant can put forth the best of his efforts only if the magic of property is held out as the incentive. Hence co-operative regimentation has not been pressed very far in Poland. A similar appeal to individual incentive has been provided for in the Yugoslav system of the local administration of the factory units. Again, the Yugoslav state has sought to reduce the burden of the responsibility for finding employment for every worker by leaving petty servicing of the consumers to private enterprise.

The Soviet Union embarked on a plan of building up the overheads of the economy and the basic heavy industries both for reasons of defence in a world of encircling capitalist enemies as well as for providing the nodal points for industrialisation. One of the objectives even of tractor manufacture and use was to build up capacity for turning out tanks and providing personnel for handling them in case of war. The agrarian policy also was made subservient to this overall policy of defence and industrialisation. The peasantry had to be regimented through the state and the co-operative farms to produce a surplus to feed the growing industrial population. This was all the more necessary because the economy was so busy in producing capital goods that there was not much of consumer goods through which the industrial sector could draw food and agricultural raw materials from the other sector. Hence, but for the regimentation, the peasant would have consumed all that he produced. It was by the method of a total control of the economy and of the money machine that almost the entire annual increase in national income was drawn away for investment. Any distribution of this increase without a corresponding increase in consumer goods would have simply meant inflation. All these methods provided an increasing volume of employment. But in order to achieve full employment as well as to force economic growth, the rest of the employable population was put into the work of transforming geography by mass employment. Moreover, the control of the economy enabled the government to transfer the work force from agriculture or mass employment to industries as the requirements of the latter expanded. It would thus be noticed that in any controlled economy employment itself, like income and consumer goods as well as all the productive resources, each be rationed and unemployment can be veiled by being converted into under-employment.

Another lesson to be drawn from the Soviet experience is that even a rigid regimentation may fail to evoke the prop r attitude and efforts for productive work without the incentive of individual gain. Even Stalin had to concede to the peasants the use of homestead farms in order to increase the supply of meat, vegetables, fruits milk, eggs, poultry and such other products of intensive farming.

While production was the primary objective of Russia, China has sought to provide full employment for political reasons as well. In view of the shortage of capital, all capital saving methods of manual work are being used along with mass employment in earthworks. Thus in agriculture even the use of bullocks has been replaced by the hand-hoe method of cultivation and railway wagons are hand shunted to save outlay on engines and fuel and provide employment for men. In any controlled economy, therefore, we find that unemployment due to capital deficiency can be veiled by rationing employment and converting unemployment into under-employment.

38. THE DIFFICULTIES OF DIAGNOSIS AND PRESCRIPTION IN ECONOMICS.

Down to the beginning of the present century, the economic role of the state was very much limited and economics was not considered to be of very great practical importance in providing rules of guidance for the individual or the state. The economists reacted to this attitude by pleading that on account of men being free agents, unlike the subject matter of the natural sciences as well as on account of the complexity of social and economic factors and relations, economics was an inexact science. It was, therefore, urged that economics could not provide any ready-made formulae or rules of conduct for individuals or statesmen. It was usual to treat the state and its interference in the economy as unpredicable intrusions increasing the uncertainties of the economic processes and impeding the progress of science and technology.

Conditions have changed very rapidly during the short period of the last three or four decades and economics has been forced to become more exact and also to get out of the relative seclusion of a more learned theoretical study to become an applied science. The main factors bringing about this change were the experiences of the two world wars in controlling economic factors and forces, the earlier experiences of the large industries, the growth of the economic functions of the state, the success of the Soviet planned economy, American experience in evolving the system of guiding the market economy, and finally, the self-confidence born out of the successes of the Soviet and American experiments in controlling economic forces with which underdeveloped countries have embarked on their programme of forced economic development.

The analysis in most of the sections in this chapter brings out the complexities in the working of an economy. In the preceding section we have examined the complementary nature of the self-acting and the guided forces in the economy. It is, therefore, necessary that we should now examine how far a reliable situation analysis of the self-acting forces in a free or a guided economy, prediction about their future behaviour and prescription of measures for guiding the economy are possible. We are examining the difficulties involved in all these processes as well as the means available for overcoming them in the succeeding sub-section.

38.1. The social and economic parameters of an economy.—Except for the dic-hard positivists, most economists of the present generation realise that in order to be a living science, economics must face the new responsibilities for diagnosis and prescription or for functioning as an art. They also realise that society and polity are wider than economy and that in the functioning of the first two, economic objectives are not the final ones because man is not purely an economic entity but a wider synthesis. Hence, economists realise that when they have given their diagnosis and the prescription on the basis of pure economic data and norms, it is not the final say and the statesmen may have to come to a decision by considering other political, social or even ruling party objectives as additional variables. The economists, therefore, may treat the latter as unknown factors, or at best, as parameters. For the statesmen, however, they are operative variables.

There are, however, certain considerations which reduce their uncertainties. Formerly, these political and social factors were considered to be unknown and disturbing alien factors. We, however, find that by now every political system has tended to settle down to certain orthodoxies of ideology and certain socio-political objectives of its own. So these are treated as known constants in the economic analysis. It is left to the state to form its own value judgment on the consideration of what economic value may be forgone for any corresponding social or political value.

- 38.2. The uncertainty of prediction on account of a large number of parameters or conditioning factors.—Apart from the social and political conditions within which the economic factors work, there is a large number of purely economic parameters, which may be obscure or not obvious, but determine the function of the economic variables. Thus the same economic measure adopted by an enterprise or the state may produce different results according to the conditions and variations in them under which they work. For example, for an entrepreneur the overhead costs, import and export policy and such other factors are conditions outside his control but determining the input-output function in his firm. Similar uncertainties for him in the working of the macrovariables are quite common. The framers of our Second Plan were not unaware of the foreign exchange requirements of the plan. But they could hardly be expected to have foreseen the American recession and the fall in the prices of the typical Indian exports in the world market.
- 38.3. The time factor in the working of the economic forces.—Analytical and empirical studies have made considerable progress since the early decades of this century when economists felt satisfied by attributing to the time dimension, in which economic forces operate, the complexity and unpredicability of economic situations. But what has been done is not enough, specially on the empirical side. Detailed examinations of the extent to which time itself determines the working of a factor as distinct from time as the carrier of other accelerating or retarding forces has got to be worked out in case of every situation.
- 38.4. Multiple effects of a variable.—Whether a variable is one of the normal market ones working in an economy, or whether it is introduced into it as a guidance measure, it may produce a number of different results which may be in conflict with one another either in terms of our objectives or for the further smooth working of the economy. Such multiple results and the conflicts among them may be due to the effects of other factors or be inherent in the factor itself. As an illustration, the results of any of the important monetary measures may be looked into. Similarly, we may look into those effects of the import restrictions like the handicaps to a number of industries and even the resultant reduction in exports which were not among the objectives of the measure.

Accumulated experience and knowledge of the working of the forces creating different economic situations is the only remedy for coping with this difficulty. On the basis of such knowledge, countervailing measures may be devised to check the effects which are not wanted. If all the conditions are not tractable, a new value judgment on the basis of compromise principle is generally adopted. Such pragmatic decisions are usual in relation to monetary measures.

38.5. Plurality of causes.—In economic and social spheres, the same result or near results may be produced by one or more or a combination of a number of causes. The complexity created by this feature of the economy for economic analysis or for policy-framing is clear. In analysis it becomes difficult to assess the functional value of a variable. In economic administration it increases the difficulty of policy decision both on the positive side of getting something done as well as on the negative side

of the adoption of restraining measures. In the latter case, it would become difficult to adopt a policy of restraint on some factor if so many other factors crop up to counter its effects. By way of an illustration we are giving below an extract from page 971 of 'The Commerce' of 12th December, 1959:—

"Reasons for boom in equities.—A good part of the rise in prices represents recovery of the ground lost in 1956-57 on account of the adverse pronouncements by the then Finance Minister and the additional taxes imposed by him. This recovery followed an improvement in the psychological atmosphere brought about by the present Finance Minister through abolition of some of the irksome measures, through minor relief in direct taxation on companies and substantial reduction in excise and export duties. Fears of nationalisation, ceiling on incomes, and more restrictions on the private sector have been set at rest by both the Prime Minister and the Finance Minister. There has, of course, been some improvement in the profit margin of such industries as jute, cotton textiles and tea, but it is from practically nil or very low levels to modest levels. Only a part of the rise in share values can be attributed to this improvement. The other causes for the boom in shares

Buying by the L. I. C., inflation, uncontrolled speculation, import restrictions and easy money in scarce commodities, shortage of good scrips, capital gains tax, progressive fall in interest rates following P. L. 480 deposits and bank deposits generated by inflation, inspired stagging in new issues by interested parties, exaggerated notions about the profits of certain new industries, manipulation by certain powerful interests to create a favourable atmosphere for capital issues. non-availability orgreat scarcity consumer durables, expenditure tax, high prices of bullion and jewellery, influx of capital belonging to Indians abroad, reduction in managing agency commission, decline in the power of Communists in certain parts of the country, improvement in Indo-Pakistan relations, better prospects for receiving foreign aid, and defeat for socialism in many parts of the world.

Quite a few of the aforesaid factors may sound unimportant when considered individually, but collectively, their impact on equity prices has been tremendously bullish."

38.6. Combination and permu'ation of economic factors.—The foregoing quotation would also illustrate the large number of factors operative, positively or negatively, in creating an economic situation. Even this example gives a list of only the favourable factors and not of the adverse factors which the favourable factors had to counter. If we examine the combination and permutation of even the limited number of highly generalised factors in our equation of the economy we would find an immense number of situations possible. If we further take into account how each factor is a structure by itself and is capable of structural changes affecting its operation, we would realise how numerous the possible situations might be. It is in this context that Marshall likened economic situations to games of chess in which no two games ever played might be exactly alike. It is for this reason that economics was considered to be incapable of providing ready-made formulae as in the science of engineering. One practical result of this aspect of the economy is to emphasise the value of imagination over and above the mere store of knowledge in those who are charged with the administration of economic affairs.

An economy, however, is not an anarchy and there are certain predicable ways in which the permutations and combinations take place. Moreover, to a considerable extent the factors are tractable. Then, again, the principle of the law of large numbers, the tool for calculating chance and probability as well as the wide application of other statistical tools enable us to reduce such situations to order.

38.7. The evolutionary nature of economic phenomena.—We have already seen how the economy is a continuous and circular chain of functional relations. In this cycle, what is an effect today becomes a cause tomorrow.

It is this feature of the economy which accounts for the self-acting forces of sustenance and growth. The difficulties created by this evolutionary nature have been overcome to a major extent by means of the increasing control over the factors, by our systematic analysis of past experience and by the wealth of statistical data. But for all these aids, planning, and even the guidance of the economy would have been impossible. With the help of all these aids, we are now able to harness the economic forces for producing the multiplier effects in the economy.

39. MEANING, TYPES AND CAUSES OF UNEMPLOYMENT.

- 39.1. Meaning of unemployment in a broad and comprehensive sense.—Having limited the scope of our investigation to the employment of human resources, we may define the meaning of unemployment from the specific point of view of the terms of reference of this Committee. The broad definition of the term would mean the lack of adequate employment opportunities at the prevailing rate of remuneration in the case of salary and wage, earners, and at an adequate level of work in case of the self-employed persons This meaning is broader than the conventional one of considering unemployment only in relation to the labour force in the labour market seeking wage work. The Committee adopts the broader definition for two weighty reasons and with its eyes on the recommendations which are being made. The 'irst reason is that our economy is still predominantly one of self-employed persons, the details of which have been given elsewhere. Secondly, we have a large section of the population which is employable but is not as yet job conscious, whether due to social environment or lack of awareness of wage opportunities. The want of gainful occupations for this section means an enormous dead weight which depresses the entire economy so that it is the responsibility of the state to make it employmentconscious and create job opportunities. This section would be regarded as voluntarily unemployed according to the terminology of the Western economists and would not be ordinarily considered to constitute a problem like the section which is involuntarily unemployed in an economically advanced community. But the additional problem of the under-developed countries is to tap and activise the entire employable labour force in wage work or self-employments by no lifying the attitude of the people towards work and then satisfying the attitude.
- 39.2. Volun'ary and involun'ary unemployment: available and ... arkst labour force.— At any time, the population of a country, or of any area under consideration, consists of males a d females of different ages. The standard international practice is to consider the population in the age-group 15 to 59 or 60 as constituting the available labour force. All those who are above and below this age range are counted as outside the available labour force and as dependents. The factors determining the ratio of these two categories have been examined in the proper place. What we have got to note here is that if any appreciable part of the population belongs to the working age group is economically inactive out of which choice, it may be considered as voluntarily unemployed. It constitutes a part of the available or potential labour force but is not a part of the labour force market or of the gainfully occupied population. This category of unemployment may be looked at from two different points of view. One is that socially this class is not a pressing problem because it is not subject to that emotional instability or subjective suffering which a sense of involuntary unemployment creates, and so, it may not be nursing a sense of grievance against the society. On the other hand, if voluntary unemployment or idleness out of choice takes away an appreciable ratio of the

available labour force, it means an under-utilisation of the human resources and a corsequent diminution in the attainable level of production and of aggregate demand.

We shall see how in our economy the actual difference between the available and the active labour force is rather high and why the difficulties in the way of measuring its magnitude are so great. Nor is it even easy to decide whether to class most of those, specially in the agricultural sector, who are not actively looking for job as voluntarily or involuntarily unemployed. For example, most of the redundant farm population on the holdings owned by the cultivators would return themselves as engaged in cultivation and may not be seeking jobs because suitable jobs are not easily available. Yet, they would be placed in the category of the involuntarily unemployed if there is a change in their attitude on account of contact with urban amenities or due to the establishment of a industry with in their reach. In our calculations later on we have adopted a practical method of measuring the magnitude of this category of unemployment by formulating a criterion of the necessary number of farm hands for cultivating a given area of land and then treating the excess number as redundant, Real voluntary unemployment would be possible only for those who have sufficient income for their subsistence from rents, proceeds of investments or from other sources. But the number of people in the rentier class is so small a part of our entire selfsupporting population (81 thousand in the rural and 41 thousand in the urban population out of 127.1 lakh self-supporting persons) that we do not consider this class as a problem.

- 39.3. Female labour force.—Social custom as well as certain features of a predominantly subsistence economy also accounts for only a small fraction of the adult women being economically active in the accepted sense of the term. Keeping women away from work, or at least declaring them as such in censuses and enquiry schedules, is considered to be a mark of respectability. Moreover, those familiar with the life of small cultivating families know how much of the time and energy of the women are taken up in domestic and farm work, including the daily processing and cooking of foodgrains, looking after small animals, and so on, which are not formally treated as gainful occupation. There has, however, been a steady tendency for women to enter the labour market. The lead has been taken by educated women. But there is also the traditional class of women workers in a number of occupations treated as unskilled. The subject of female labour has been dealt with separately.
- 39.4. Growth of labour market.—The importance of the attitude towards work and economic activity has been noted in a previous paragraph. The emergence of the desire to work and improve material conditions is a basic factor for the progress of the economy. It may come as a result of an increase in population and over-crowding in the older occupations in the backward societies. The development and consciousness of wants and the availability of the means for satisfying them are equally important incentives. Along with these causes we find that the pressure on land has been reducing the scope for work in the agricultural sector while the expansion of industries, public services, commerce and other openings for gainful work has been inducing the transfer of the hitherto voluntarily unemployed people to the labour market. This trend is cleraly brought out by the rising figures on the live registers of the employment exchanges since 1953. The Committee has, therefore, made appropriate recommendations, for meeting this mounting demand for job opportunities both by the educated as well as the uneducated labour force by means of wage work, salaried jobs, self-employment, mass employment and relief employment.

40. Under-Employment.

40.1. Under-employment as a special feature of a backward economy.—It has been gradually realised, specially during this decade, that in all the under-developed countries of the world the magnitude of unemployment is not clearly visible because it is

present in the form of under-employment of a large number of the wage-earners and of the self-employed people in urban and rural areas. It, therefore, manifests itself in form of work being available for a smaller number of man-days in agriculture, eraft work or wage work. For the community as a whole it means that the human resources are not fully utilised and the attainable level of production is not realised. In the appropriate place the Committee has sought to calculate the extent of under-employment (where data have been available) and to convert the magnitude of under employment into full units of unemployment according to the standard method adopted for such calculation and conversion.

- 40.2. Difficulty of calculating under-employment.—The Committee, however, had to face considerable difficulties in this calculation when one category of under-employment tended to shade into another. For example, in case of surplus farm population, two methods of calculating the under-utilisation of the human resources are possible. We may calculate the number of persons which should be sufficient to work a holding according to the crops grown and the method of cultivation. Alternatively, we may calculate the number of man-days offered by the farming family during the year and then convert the number of man-days for which there was no work into full man-year units. Each of these alternative methods has got its own value.
- 40.3. The result of under-employment.—The evil of under-employment is that the resources of the society are not utilised fully. It may be due to the poverty of natural resources (like the low ratio of land to labour) or to a general lack of enterprise. It may also be due to the imbalance in the structure of the economy at any given time. Finally, it is a general feature of backward technology, lack of capital resources, a low level of production and a consequent low level of consumption as well as saving. Under-employment may, however, be preferred to an cutright unemployment because the former does not create the same volume of explosive emotional force as the wage-earner if the poverty due to the under-employment is well-distributed and has been stabilised. However, for various reasons it can hardly be advocated as an alternative of choice.
- 41. The margin of unavoidable absence from gainful work not to be treated as unemployment or under-employment.—Full or adequate employment is not incompatible with a certain percentage of the workers in the labour market being inactive for normal unavoidable reasons. It has been calculated that in the advanced countries about 3 per cent of the workers may be off active work due to the incidence of illness, on account of social or family engagements, or because they are moving from one job to another.

42. THE ECONOMIC AND SOCIAL CONSEQUENCES OF UNEMPLOYMENT.

42.1. The direct measurable loss of unemployment.—The direct loss every year in terms of money which is caused by unemployment, including under-employment converted into units of unemployment, in our State is enormous. It comes to about Rs. 200 crores annually even when we calculate it at the lowest level of income and for a heavily under-estimated number of the units of unemployment. This latter figure has been multiplied by the annual income per capita of Rs. 448 of the gainfully occupied persons in the lowest income group according to the figures in the final report of the National Income Committee for the year 1950-51. And this total of Rs. 200 crores per annum is not small when we find that in the same year the total income of Bihar from the different sectors of economic activity was estimated at not more than Rs. 820.50 crores. It is to be noted that this estimate has been arrived at for a very heavily discounted number of the unemployed population in view of the large volume of voluntary unemployment. Moreover, productivity and income have been calculated only at the existing level of our backward

technology and low ratio of eapital to labour. Hence, even without bringing in the factor of higher technology our income may increase by 25 per cent at once if the problem of unemployment can be tackled.

- 42.2. Indirect loss and stagnation of the economy due to unemployment; the selfpropagating force of employment.—We have seen how prosperity as well as poverty in any sector is self-propagating and affects the prosperity and progress of the entire community. It is, however, not easy to calculate the indirect loss of what accelerated rate of progress might be achieved if this unemployed labour force were to be employed even at a low level of technology and capital appliances. In a country of enormous human resources and low availability of labour-aiding capital appliances, any devise to convert the wasting labour resources, evaporating day after day, into any form of socially usefull commodity or services would be a net addition to the wealth of the nation. This line of reasoning becomes all the more significant when we realise that the unemployed people are a load on the consumer resources all the same whether they contribute to it or not. Moreover, the emotional and spiritual satisfaction and the social discipline which result from work have also got to be taken into account. It is for these reasons that China has been taking up many economic and productive activities on primitive lines without modern mechanical appliances for the construction of large earthen dams, embankments, roads, and so on. Most of these primitive methods may have to be replaced by higher technology and instrumental methods of work when savings and capital appliances grow. But, for the present, they constitute a net material gain and are powerful factors of social discipline besides producing a sense of emotional satisfaction among those participating in all these activities that they are building up the material foundations of the prosperity of the nation. If we examine such a policy in its other implications we may take into account the multiplier and propagative effects of this added volume of employment in activising the economic system of the state. It is universally realised that both poverty and prosperity are contagious. Misery and poverty in any place or in any sector depresses the economic activity of the entire community. On the other hand, the stimulus initiating economic activity in any particular sector would tend to relay the original stimulus to other sectors. As has already been seen, the propagative or multiplier value of any stimulus or activity would also depend on the nature of the work, whether it is merely employment absorbing or also employment generating. But in any case, no productive employment would fail to transmit some stimulus to the economy.
- 42.3. Unemployment as a source of weakness in the growth of organised labour and as a handicap to rationalisation.—There is also another point which may be noted. As there would always be an urge for persons to prefer the more remunerative jobs in the organised industries, the existence of a large volume of unemployed persons creates such a pressure on the labour market that it weakens the bargaining power of labour. It is also a factor which stands in the way of rationalisation and other measures for improving the productivity of the workers. This handicap to the trend of modernisation has been keeping up our cost of production in comparison with the level of international cost structure which results in weakening the competitive power of our products at home and abroad.
- 42.4. The consequences of unemployment on individuals and families.—Long before economists and stat smen became interested in the study of poverty, warmhearted philanthropists took up the question systematically in England in the last century. The ground had been prepared by much of the work of practical relief extended to those who were subjected to the impact of the Industrial Revolution in England. It is on the basis of their studies that economists have now systematised the study of poverty in all its aspects. In classifying and assessing the weight of the different causes of poverty they have found unemployment to be one of the major factors. As we know, unemployment is generally cyclical in the industrialised

countries. But in India, unemployment generally means the failure of a youngman to get even the first start in a life of gainful occupation. The physical sufferings and the sense of frustration can well be imagined as they can hardly be measured. To some extent their rigour and weight are reduced and modified by the characteristics of the rural economy. But the Committee has noted and examined elsewhere the general trend towards a shift of the younger generation to urban areas and of the demand for paid jobs both among the educated and the uneducated. These factors have been converting much of the veiled rural under-employment into visible unemployment and have thus been rendering the individual misery and hardship more spectacular. This misery would have been much greater but for the fact that most of these job seekers have still got their moorings in the villages. The seriousness of the situation has been brought out by the National Sample Survey in report on preliminary survey of unemployment, September 1956. The survey covered all the large towns (except the cities of Calcutta, Delhi, Bombay and Madras) with a population of 50,000 and over. The figures show that 21.64 per cent of those in the age-group 16-17, 20.56 per cent of those in the age-group 18-21 and 8.76 per cent of those in the age-group 22--26 in the labour force were unemployed. For the age-group 27-36 and 37-56, the figure of unemployment was 4.19 per cent in each. Thus the incidence of unemployment was the highest just for the young people who should be getting settled in life, deriving their due share of the joy of life appropriate to their age, consolidating the family, getting accustomed to a disciplined way of living and so being emotionally integrated into the society, and should be accumulating the experience of work which would be the asset for themselves and for the community for the rest of their lives. If such a large number of young men feel that society has failed to find a place for them, they can hardly be expected to develop any sense of attachment to it.

42.5. The political and social consequences of unemployment and poverty.—The nature of these consequences can be inferred from the remarks in the preceding paragraphs. Individuals are integrated into and held together in a cohesive society because they gain materially and also emotionally by belonging to the society in general, or to any smaller unit of the society in particular. It is universally recognised by experts as well as by laymen that the family is the only natural unit in the society. Beyond the family, the individual would attach himself to any social organisation, be it a democratic state, or a monarchy, or a dictatorship, or a successful band of adve turers, or any other body weilding power, which in his own judgment satisfies the material and non-material wants of himself and of his family. Temporarily, the emotions may be worked up to a high pitch, calling for the sacrifice of material well-being for an ideal, but it cannot be a permanently embedded motive force in man's behaviour. It is for this reason that unemployment, with its attendant poverty, misery and the sense of frustration, detaches the sufferer from the society and creates in him a sense of hostility against the established order. It is not unreasonable that if his material interests are not satisfied by the society he does not feel emotionally integrated into it. Therefore, we can well imagine how unemployment and under-employment generate poverty which, in turn, generates misery, hate and all these attitudes and behaviour which loosen the ties of social cohesion and social discipline. The emotional and spiritual consequences of unemployment are as serious as the economic consequences even though the former cannot be measured like the latter.

43. The Growth of the Awareness of the Problem of Unemployment.

43.1. Unemployment becomes markedly visible only under the wage system.—The phenomenon of unemployment becomes clearly visible only with the development of monetised economy and the growth of a class of salaried and wage-earning employees. It is not so spectacular so long as there is the predominance of subistence economy

and self-employment. In the society before the era of commercial and industrial revolution, the economy was controlled by nature because the utilisation of land dominated the life of a community. Unemployment in those days whether in Asia, Europe or elsewhere, produced the more drastic results of famines. With the development of division of labour, of commerce and of large-scale industry, the economy was monetised and commercialised in the West. In India and in other under-developed countries of the world, this is being brought about by deliberate national efforts and international co-operation. But even before an appreciable degree of industrialisation has taken place, the low standard of living of the under-developed countries has directed attention to the large volume of unutilised and under-utilised human resources as not only a problem by itself but also as the cause of low national income and the low capacity to save and to invest. Such an imbalance in the world economy has now been realised as constituting not only a danger to the democratic society all over the world but also as a source of economic weakness to the more industrialised countries and the world economy as a whole.

- 43.2. Realisation of the fundamental nature of unemployment as arising out of deficiency of demand and productivity in the economy.—In the West, unemployment was the major issue of the economic science since the middle of the last century. For a long time the blame for the cycles of booms and slumps, of prosperity and depression was laid mainly at the door of the monetary factors. It was only in this century that it began to be realised gradually, after the analysis of Marx on this question had been ignored so long, that it is the deficiency of demand which is the main cause of depression. This line of thought was systematised by Lord Keynes and has now become a guiding principle of national policies everywhere. While Keynes and his followers have emphasised mainly the monetary aspect of the demand, it is clear that it can be interpreted in terms of concrete goods and services as well; and in this sense it is of special significance to India as well as to the other underdeveloped countries lacking advanced scientific and mechanised productive equipments for agriculture, mining, industry, transport and even commerce. Looked at from this point of view, the volume of our unemployment and under-employment turns out to be both the cause and the result of unemployment because production, demand, consumption and employment are sustained reciprocally.
- 43.3. Growth of the method of control of the economic forces: their guidance for employment and production.—The forging of these concepts and tools of theory went along with the growth of practical methods of measuring economic resources, employment, production, consumption and other constituents of an economy. Side by side, from the First World War onward, the technique of unified and centralised administration and control of the national economy has grown up. It assumed the most systematised form under Soviet Planning. The American experience in coping with the unprecedented volume of unemployment caused by the Great Depression of the thirties has contributed to this knowledge and technique as applicable to an economy based on free enterprise. Simultaneously, the spread of this Depression, starting in the U.S.A. and extending to the entire world, its unprecedental magnitude, coverage and prolonged course made the problem one of the major anxieties of the League of Nations which initiated calculations on the subject in global terms. The Second World War, with the object of utilising the economic resources in every country to the maximum, led to further systematisation of the technique of guiding the economy for maximising employment and production. Then, even before the war came to an end, each country was engaged in the preparation of plans for post-war reconstruction and development in view of the depression and unemployment which has always followed major wars since Waterloo. It is noteworthy that the victorious allied powers had been drawing up plans for the reconstruction even of the defeated countries for fear of unemployment and poverty among them intensifying economic misery all over the world. It may

also be noted that our own First Five-Year Plan was drafted on the basis of the schemes of post-war development which were being prepared while the war was coming to a close. Considerable progress in the technique of guiding economic development and increasing employment was made in the actual process of post-war reconstructions in different countries. The international awareness of the urgency of the problem of employment is brought out by the numerous organisations of, and agreements for, international co-operation like the International Monetary Fund, the World Bank, the G. A. T. T. and so on. In the International Labour Organisation Conference of San Francisco, in 1948, Convention no. 88 and Recommendation no. 83 mark a great step in the growth of the awareness of the problem of unemployment and full employment. A more concrete shape was given to this anxiety when the I. L. O. sent out a circular letter in 1955, emphasising the idea and concept of the effective use of the whole of the available labour force, a stand which this Committee has taken up from the very start of its investigations.

43.4. Awareness of the problem of unemployment in India and Bihar.—Even while the British Empire was growing and the Industrial Revolution was taking strides in Great Britain, there were liberal and philanthropic Englishmen who were bringing to light the exploitative impacts of both on the subject countries. It is some of them and the nationalist economists in India who, in the last century, drew attention to the decay of industries in the rural and urban areas and to the increasing pressure of people displaced from the traditional industries on land. They examined, in the light of these facts, the problem of poverty and of famines which they saw as arising out of unemployment and under-employment. And though these terms were not used by them, the provision of test works in the Famine Code shows how the connection between famines and temporary unemployment due to natural causes was fully realised in practice. From yet another angle, this linking of poverty with unemployment was further emphasised in the Swadeshi Movement at the beginning of this century when unemployment among the educated people in Bengal began to emerge faintly as a problem. It is remarkable that the first signs of the awareness of unemployment as a direct problem arose in connection with the educated people. The economy of the country had been so stagnant that even the small annual out-turn of the colleges was not being absorbed fully. It is significant that even as late as 1935 the comprehensive nature of the problem of unemployment was not being realised and the Unemployment Committee set up in that year by the Government of Bihar and Orissa was required "to examine and report on the nature and extent of unemployment among the educated elasses, to investigate the possibilities of diverting more educated young men to industry and to make recommendations for reducing the volume of middle class unemployment", (Resolution of the Government of Bihar and Orissa, Revenue Department no. 175-Com R., Ranchi, the 22nd July 1935.) We have already seen how towards the close of the Second World War, all the countries of the world, specially those engaged in the war, foresaw the need of preparing blueprints for transition from war to peace economy and for the resettlement of the demobilised people in normal occupations. It was not only necessary to regear the economy for normal lines of production but it was imperative to avoid any widespread unemployment during the transitional period. In India, too, the Department which had been set up for the recruitment of non-combatant personnel and for strengthening the personnel of the war industries and occupations was now reorganised for the resettlement of the demobilised people in normal activities as the Central Directorate of Resettlement and Employment. This Department was first primarily concerned with finding suitable employment for the discharged combatants and for the technicians of the war industries. Thereafter the Employment Exchanges took up the function of registering all who applied for jobs and of passing information on to the employers. After the end of the war, and then after the Independence, the major issue before the country was that of the supply of foodgrains. We can very clearly see the influence of this problem and the inheritance of the post-war reconstruction schemes of the British regime on our First Five-Year Plan. But the Plan did not directly concern itself with unemployment as a problem requiring separate measures. It was assumed that the general development of the economy as a whole would stimulate production, national income and demand, and thus solve the problem of unemployment. A rather optimistic picture of the extent of employment generating value of the Plan was pictured. It was expected that even apart from the large volume of tertiary employment and self-employment in cemmerce, transport and communications, the execution of the Plan would create 4 lakh jobs in industry, 7.5 lakh jobs in irrigation and power, 3 lakh jobs in buildings and roads, 20 lakh full jobs in cottage industries and fuller employment for 36 lakh people already in it, and finally, 23 lakh jobs in agriculture. An awareness of all the implications of the growth of population also had not dawned fully.

43.5. Growth of the awareness of the problem of unemployment since the year 1953.— The publication of the first part of the Report of the Census of 1951, did high-light the problem of the vast redundant and unutilised human resources both in its static picture and in the dynamic aspects of the past and future growth of population. But it was published in 1953 and the data were not before the Planners while the First Plan was being hammered out. However, by 1953, the Planning Commission, as well as the Central Government were face to face with cumulative and corroborative data on unemployment and under-employment not only through so many reports and studies but also from the figures of the Employment Exchanges. Thus the final report of the National Income Committee for 1950-51 estimated the loss to the national income in that year on account of unemployment at Rs. 3,551 erores. The Report of the Agricultural Labour Enquiry, 1950-51 also estimated the loss d.e to unemployment among agricultural labourers, including under-employment converted into man-year units as equivalent to Rs. 88.9 lakh. All these findings were supported in 1953 when the Census of 1951 reports were published. Then, while all these data and conclusions on the basic features of unemployment and under-employment were being forced on attention and were under consideration, a number of very concrete features calling for immediate measures cropped up. Thus between 1951 and 1953, the number of job-seekers on the live registers of the Employment Exchanges rose sharply from 3.37 lakh to 5.22 lakh (it rose subsequently to 9.22 lakh by 1957 to 11.83 lakh by 1958 and to 142.1 lakh by 195%). In the agricultural sector, there were local scarcities and the hardships caused by high prices of foodgrains. In the organised industries, not only there expansion of employment, but lay off, retrenchment and closures caused discontent and distress which became prominent in 1953-54. Another survey of rural unemployment in Uttar Pradesh was conducted for the Planning Commission and the report became available by July, 1954. It collected and tabulated useful data though the survey treated the agricultural and non-agricultural classes together and concluded that the extent of unemployment amounted to 46 per cent of the working days. Thus we notice that even before the First Plan was half way through, the urgency of the problems of unemployment and under-employment began to create something like an alarm. The set back in agricultural production and the hardships scarcity further accentuated the problem of unemployment to such an extent that by 1953, the anxiety of the Government of India had been aroused for taking some immediate measures. Hence, on the basis of schemes called for from the state governments, additions and adjustments in the state plans were introduced costing Rs. 34 everes in addition to schemes of permanent improvements in scarcity areas costing Rs. 40 crores for extending unemployment relief in urban and rural areas. Bihar was given respectively, Rs. 6.75 crores and Rs. 3.5 crores under these two measures. It was the rising trend of the number of registered applicants on the live registers of the Employment Exchanges which indicated the necessity for collecting more information on employment in the urban areas. The position was that while an appreciable volume

of information on rural employment had been collected and the usual returns from mines and registered factories gave sufficient information about employment trends in the organised industries, no such data about employment in urban areas were available. Hence, in order to check the figures of the Employment Exchanges as well as to collect more adequate data, the Planning Commission arranged a rapid survey of urban unemployment conducted by the National Sample Survey. The results of this survey became available by September, 1953. The sampling covered all the towns of India with a population of 50 thousand and over except Calcutta, Delhi, Bombay and Madras which had to be treated as a separate category. The survey revealed that in an estimated urban population of 680 lakh of all the towns and cities including Calcutta, Delhi, Bombay and Madras, 55.85 per cent or about 375 lakh were in the working age-group. Out of this approximately 50 lakh were unemployed or severely under-employed.

43.6. The problem of unemployment and the Second Five-Year P.an.—In the light of all these factual materials and of the experiences and the concrete features which forced themselves on the attention of the state and the public, it is easily understandable that the problem of employment was taken note of seriously in the framing of the Second Five-Year Plan. The misplaced optimism on the subject of the First Plan is absent, and the Report makes a very modes: claim in Chapter V in the following words:—

"In determining the programme for the next five years, the present consideration is that at least the deterioration in the unemployment situation should be arrested".

We need not go into the details of the extent to which the contour of the Plan was shaped according to the considerations of employment and how the technique of calculating the employment potentials of investments of different categories have been worked out. They all show the proper anxiety about the great problem of unemployment. They also show the gradual improvement of the methods of measuring unemployment, under-employment and for forecasting employment potentials.

43.7. Extension of the scope of emp'oyment and labour market survey from 1958.—This Committee has been considering the problem of unemployment in a much wider significance than the orthodox meaning of taking cognizance of only involuntary unemployment. It has all along been conducting the enquiries on the basis of the desirability for aiming at utilising all the available labour force to the maximum. This point of view is now being emphasised by the expansion in the functions of the Employment Exchanges all over the world and in India according to the methods worked out and standardised by the I. L. O. In Bihar, too, the Employment Service has undertaken qualterly survey of the employment markets and is seeking methods to extend the scope of the survey as we shall see later on.

CHAPTER II.

Unemployment in different Economic Stages and different Economic Systems.

- 1. Unemployment as a pathogeny or malady of an economy.—We have seen that under ideally favourable conditions, the urge of a progressive economy would be to expand and grow continuously towards the attainment of the level of full employment on the assumption that there is a continuous balance among the forces and the material factors of the growth. We have seen, further, that the process of growth may be subjected to deficiency conditions in the operation of one or more of the factors of growth or to the intrusion of positive alien factors counteracting the normal process of growth. It is to be remembered that like the growth factors, the adverse factors also tend to be self-propagating or subject to multiplier effects until arrested by the reassertion of the vital forces of growth. Just as a perfectly and ideally healthy condition of any organism is not normal either according to statistical inference or analytical reasoning, no economy can be found to be functioning under ideally favourable conditions. Every process of sustenance and growth involves some sort of conflict between the favourable and the adverse factors and all deliberate endeavours aim at strengthening the former and counteracting the latter. All such deliberate measures involve human calculation, anticipations, and these as well as the responses of nature and of the economic system may not turn out as were expected, and may produce imbalances and bottlenecks. All these features may prevent the realisation of full employment as we shall examine.
- 2. The macro and the micro aspects of unemployment.—In the succeeding paragraphs we shall be examining the causes and aspects of unemployment mainly in the macro or aggregative aspect. Hence it is necessary to point it out here that unemployment may be due to causes operating at different levels of generality and specificity. This analysis is of great practical value because the Committee has been called upon to examine the problem of unemployment for the purpose of policy-framing for curing different kinds of deficiencies in employment. Looking at the problem from this point of view, we may place it in the following classes:—
 - (1) Unemployment may be due to factors underlying the entire economy like backward technology, deficiency of capital, imbalances in the process of growth monetary causes, etc.
 - (2) It may specifically start in or affect any particular sector in the first instance before affecting the entire economy. Thus it may originate as a result of a deficiency in agricultural out-turn; or it may start in the advanced countries if the commercial enterprises have infected their inventories and then start reducing the volume of their orders as during the recent recession of 1957-58 in the U.S.A.
 - (3) It may be special to any particular trade like the engineering industries in India affected since 1957 on account of the scarcity of raw materials.
 - (4) Unemployment may hit a particular locality. Pockets of depressed areas are not unusual even in the advanced countries and they call for special measures.
 - (5) Unemployment may affect particular classes. This Committee was called upon to make a special enquiry into the causes of unemployment of educated persons. The problem of unemployment of women has also attracted the attention of the Committee.

- (6) Finally, the incidence of unemployment on particular families may have to be considered when social planning is being taken up in detail at the village level in rural areas and ward level in urban areas. It has not been usual with the economists to go into this aspect of the problem in the study of unemployment. But the study of poverty has been developed since the last century as one of the useful branches of economics and the incidence of unemployment on individuals and families has been examined from this point of view for appraising the relative weights of the social causes of poverty as against such specific causes particular to the family as the death or incapacity of the bread-winner, large size of the family, and so on.
- 3. The broad categories of the economic conditions (stages of growth) and of economic systems.—Resuming the examination of unemployment in the macro-economy we may classify the broad heads according to which the specific problems arising out of the phenomenon sort themselves out, each requiring its own special measure. A cross-classification, however, is inevitable because apart from the different stages of growth, there are different economic systems to be taken into account. Thus in looking for the remedies, we consider—
 - (1) the stage of growth; whether backward, developing, or mature, and
 - (2) the system of the conomy; whether it is a free and competitive one, is a controlled and regimented one or is a compromise type between these two.
- 4. Classification of the economy according to the system.—The form and the extent of unemployment vary according to the system of the economy. A perfectly free market economy and a completely controlled and regimented economy are the two extreme types which are mere concepts today. In the real world, every economy is located at some position in between these two poles with a varying mixture of freedom of the market forces (price mechanism) and regimentation, control and guidance of these forces. There are no clear cut and sharply differentiated categories and the real models shade into one another like the colours in a spectrum. This is because, while the conditions of a perfectly free competitive market are not compatible with the growing strength of the impersonal market forces dominating individual behaviour, perfect control of the economic forces is equally impossible on account of the time dimension in which economic forces operate, the projections and forecasts which are necessary, the margin of unpredicability in the working of the economic forces, the chances of consumer resistance even under control and the possible manifestations of the intractibility of the natural forces which count in spite of the advance of technology and science. The significance and importance of the consideration of the type of the economy are that unemployment being a morbid aspect of the working of the economy, its form and intensity would vary according to the extent to which the market forces are subjected to deliberate control as well as the affectiveness of the control. Very broadly, we may adopt the following classification of the systems for our purpose:---
 - (1) A perfectly free and competitive economy in which the decisions of the individual consumers and producers are compounded into the market forces and no individual consumer or producer can influence the market or the prices. Moreover, it is assumed to be free from any external control and regimentation.
 - (2) A guided market economy with various degrees of compromises between a free and a controlled economy: Thus there may be a highly developed

market or capitalist economy in which the object of control is to sustain and foster free enterprise and to protect it from the normal monopolistic trends as well as from other unhealthy developments in the market forces. The U.S.A. is the leading example. Control is not absent from this economy but its objective is to conserve free enterprise. On the other hand, the economy of the U.K. and of many other advanced countries show greater learning towards the socialist pattern without being outright socialist.

- (3) The socialist system of economy of various shades ranging from the boundary line of a guided economy to one of complete regimentation and control: The leading feature is state capitalism or a gradual approximation towards complete state ownership of all means of production. In the extreme form the consumer demand itself may be regimented completely as is being done in China. But even in the Soviet Union, a margin of free market for the produce of the peasants' homestead farms has been allowed to exist. In a more liberal system, the consumers may be allowed a wide latitude of choice with the state seeking to adjust the structure of production to the structure of the changing pattern of demand. An even more liberal system may go a step further towards liberalism by allowing some freedom of choice in saving and investment and the coexistence of a private sector of production and distribution.
- 5. Classification of the economy according to the stage of growth.—While the type of an economy mainly determines the extent of and the effectiveness with which the deficiency and the pathogenic factors causing unemployment may be dealt with, the stage of economic growth shapes and determines the very nature of unemployment. We shall now see in detail how the form of unemployment differs specially between an advanced economy and a backward or under-developed economy. We shall also examine how the problem of unemployment in a transitional economy, in between these two, has its own special features arising out of the process of growth itself in addition to its other aspects resulting from the composite character of the economy with features both of a backward and a developed economy.
 - 6. Unemployment in a primitive or tribal economy.—This problem need not detain us because it is not of much practical value to us. It is, however, interesting to note that in such an economy the individuals are so thoroughly merged into the community that the incidence of poverty and prosperity is shared by all alike to an extent which may be impossible even in a thorough-going communist society. A bold bid for this target is being made in the Chinese Communes, but in the country as a whole it is hardly possible to eliminate all differences in the standard of living between the rural and the urban workers and the existence of different income groups. We may also note that in the primitive society the level of technology is so low that employment and prosperity depend entirely upon the response and vagaries of nature. It is for this reason that, all over the world, occasional famines were quite frequent not only in the primitive communities but even in the societies with more developed agriculture but without an adequate development of commerce and handicrafts which later created an urban sector and commercial capitalism.
 - 7. Unemployment in a stagnant agricultural economy.—In view of the fact that there is hardly any country today in the world which conforms to the type of a purely agricultural economy, we need not examine its features in detail. Most of these features would be brought out in the examination of the backward and the developing economies because the agricultural sector is still the dominant part of their economy.

- 8. Unemployment in a stagnant agricultural and handicrafts economy subjected to the impact of technology and industrialisation of the advanced countries.—When the commercial and the industrial revolution of the age of machinery gathered momentum in the West in the last century, the backward agricultural countries were subjected to the impact of their competition. The result was that the handicrafts in such countries decayed and increased the pressure on land. However, wider markets were created for their agricultural produce and these countries, too, embarked slowly on a course of economic development. The reaction, however, meant mainly a passive adjustment.
- 9. Unemployment in the first and the second stages of a developing economy. The strains and stresses of transition.—We may agree to ascribe a definite meaning for our purpose to the first and the second stages of a developing economy and examine their distinguishing features before listing the factors bearing on unemployment in these stages. In the first stage, most under-developed countries embark on the development of some mineral resources, on medium scale manufacture of many kinds of consumer as well as light producer goods, on the development of power, transport and communications and on such chemical industries for which resources are available. In almost all cases, they have got to begin the building up of the economic overheads. In the second stage, they pass on to the manufacture of all kinds of heavy machinery. This is the general pattern, though the Soviet Union started with most of the heavy basic industries and is even now deficient in the development of consumer industries. We may designate the third stage as the final one in which a self-propagating and self-sustained economy with mutually reciprocating sectors to the extent of the natural resources available, has been attained. Broadly, we should consider an economy to be in transition so long as this maturity of autonomous growth is not achieved even though the very concept of economic growth implies some sort of permanent dynamism. We may, after thus defining our terminology, proceed to examine the features of the strains and stresses of a developing economy still in the process of transition. This analysis is specially applicable to our economy and to the economy of practically all the countries classed as under-developed today.

10. THE FEATURES OF AN UNDER-DEVELOPED ECONOMY IN TRANSITION BEARING ON THE PROBLEM OF UNEMPLOYMENT.

- 10.1. General remarks.—Since the analysis undertaken here would reappear in an applied form when we examine the features of the economy of Bihar bearing on the problem of unemployment, we may confine ourselves to the broad generalisations alone here.
- 10.2. Scarcity of capital and low productivity.—Scarcity of capital resources and the consequent low productivity per worker, which is a feature of a backward economy, continues to be a serious handicap in the transitional stage. It is easy to see that productivity per worker would be low as compared to that of advanced countries because the supply of power and mechanical appliances available for each labour unit is low. This means that income per capita is low. This means that the capacity to save is low just when large initial amounts of saving are required annually. The direct bearing of this fact on unemployment is that the aggregate demand of the community for consumer goods is low, and consequently, the derived demand for capital goods has got to be stimulated by deliberate efforts of the state. It is the supply of capital resources which constitutes demand for labour directly.
- 10.3. Low margin of saving.—In a backward economy, productivity and income per head being low, and the number of business enterprises with larger incomes capable of affording a margin for saving being small, the supply of capital resources is poor.

We shall soon see how in the first stages of growth, the increase of population is so rapid that the small increase in national income is absorbed in consumption. On the other hand, these developing countries are called upon to accumulate such a large volume of capital resources and to strive for rapid technological advance within a short period of a decade or two by a forced pace of economic growth as the older industrialised countries had accomplished over a century or more. Again, in the West the accumulation of capital was achieved over the long period of centuries both by means of high profits in new enterprises as a reward for pioneering work as well as by exploiting the colonies abroad and labour at home. Such methods of saving and capital accumulation are not possible now. And yet, the workers have got to be made to work and the consumers to stint in order to provide savings. As free and voluntary efforts are not enough, the state has got to step in to force savings by means of fiscal and monetary measures. The state can exploit the present generation for the benefit of the future far more effectively than a free economy by means of indoctrination and ideological appeals as well as by the exercise of the coercive powers of the government as has been done and is being done in the totalitarian countries. Such measures are necessary in view of the magnitude of the savings required and the meagreness of the profits of the state enterprises in the first stages of a planned and forced growth of the economy. We have indicated elsewhere the remedial measures against inflation inevitable in a forced growth.

- 10.4. The pressure on land.—Land continues for a long time to be the main form of instrumental goods for aiding production and providing employment in the absence of industrial capital resources. For this reason the rigour of the law of diminishing returns to the applications of successive doses of labour can be held back only by means of capital investments as overheads for the development of land and by better methods of cultivation. It is only in this way that more intensive farming can provide additional employment on land without depressing the returns for labour. But it is not until the economy is approaching the stage of maturity that the number of farmhands begins to fall.
- 10.5. Rapid growth of population. In the first stages of economic development, a number of causes lead to a large increase in the annual addition to the population, thus producing a race between the demand for employment and the painful process of capital accumulation. Throughout the stages of growth, right from the stage of the primitive economy, birth rate has been always high and stands at about 4 per cent per annum. A fall in the birth rate sets in only after a very high stage of development and a high standard of living and cultural life have been attained. The growth of population has, therefore, been primarily conditioned by the continuous fall in the death rate. Economic progress leads to a more steady supply of resources and famine conditions are eliminated. The usual rate of growth of population under such conditions is about 1 per cent per annum. But the on-set of industrialisation and welfare measures lead to a further fall in death rate as a result of better distribution of income among people in the lowest income groups, the success of public health measures in preventing epidemics and the extension of the facilities for medical help and treatment. These factors bring about the next instalment of the fall in the death rate and the annual increase of population may rise to 2 per cent as we might be experiencing in this decade in India. The result is that in this transitional stage, the large annual addition to the labour force is one of the most serious problems before the state. The problem is further accentuated by the growth of job consciousness among the people as a result of industrialisation, urbanisation, education and a new attitude towards work and standard of life.
- 10.6. Improved technology in relation to unemployment.—One of the remarkable developments of the present century has been the speed with which new knowledge becomes a part of the world heritage. But the building up of the institutions for

research in science and technology and of the appropriate personnel takes time and costs money. In the transitional stage of an economy even the process of borrowing the world heritage of technology and then making it self-propagating takes time. The process, however, does account for a steady expansion of the avenues for employment when saving and investments create the physical embodiment of technology.

- 10.7. Slow growth of economic overheads, external economies as well as of skill.—In the first stages of the modernisation of an economy, very heavy capital expenditure has got to be incurred on the development of transportation, power, conservation of soil and on measures for taming nature. The development of transportation itself requires heavy initial expenditure on railways, roads, canals, bridges, taming of rivers and for the means of conveyance appropriate for each. Similarly, large capital investments are required for other purposes. The capital-intensity coefficients in such enterprises are considered to be 6:1 as against 3:1 in manufacturing industries on the average. Moreover, the margin of scope for less capital intensive alternatives, which is possible in many industries, is limited in many cases. One of the results of this condition is that the cost of production in this state of growth is high. Moreover, the efficiency of capital also depends on the skill of the workers, the sense of discipline among them and the acquisition of a new outlook for associative activities which take time to grow. This is another factor in keeping the cost of production high. The high cost of the products has got a bearing on employment because the competitive power of the developing economy in the world market tends to be low in spite of the lower wage rate as compared to that of the advanced countries. Development, however, creates a large volume of employment and accounts for an appreciable increase in money incomes. But since the major part of the investment is on capital and producer goods and public utilities, there is a marked tendency of rising prices of consumer goods, a consequent pressure for higher wages and further advances in the costs of production. The inflationary trend may be arrested to a considerable extent by developing agricultural production as well as by fostering the manufacture consumers goods on traditional lines,
- 10.8. The state in relation to business enterprise in the developing economy.—Quite apart from any ideological considerations, the simple fact of a lack of the supply of private enterprise itself may force the state to enter the field of business as the promoter of new industries and to undertake their management. Dearth of saving and capital resources compels the state in a backward economy to saving and mobilisation of capital by means of fiscal and monetary measures. The inadequacy of economic overheads forces the state into public utility undertakings. Similarly, paucity of private enterprise and the urgency of speeding up economic growth is the compelling reason, quite apart from ideological considerations, for the state undertaking the promotion of heavy basic industries. Thus we find that state enterprises dominate the economy by becoming responsible for public utilities, other overhead services, as well as for the heavy industries on which the superstructure of industry and commerce are built up. In this way, the state tend to become a big employer of unskilled and skilled labour as well as of the technical personnel.
- 10.9. A developing economy in relation to employment in commerce.—The term commerce is used to indicate the large field of employment which expands as the tertiary sector from the development of the primary and secondary spheres of employment. It provides a very large and expanding field for self-employment and turns out to be the most useful safety valve for easing the pressure of the growth of population in the intermediate stages of economic growth. We have not got sufficient data for determining the multiplier coefficient between the primary and secondary sectors of employment on the one hand and this tertiary sector on the other. But this much is clear that all the primary and secondary industries provide the

nodal points for the proliferation of small self-employing industrial as well as commercial enterprises.

by the state and the emergence of the state as an entrepreneur, however, raise some serious difficulties. It is in the less developed countries that such measures become more urgent and the state tends to be saddled with the multifarious responsibilities of economic functions apart from the traditional administrative responsibilities. In such a situation, the administrative machinery and personnel have got to expand rapidly, and in most cases, to work out their own methods for the promotion, management and control of economic enterprises in which the technique of pure civil administration is not very helpful. Busine's administration, moreover, requires quick decisions which are not compatiable with the usual red tapism of civil administration.

This is one of the reasons why we advocate the participation of private enterprise, both indigenous and foreign, in suitable state enterprises and their equity capital. Foreign participation would not only ease the difficulties of foreign exchanges and technological deficiencies, but also help to build up the traditions of a higher managerial efficiency. Participation of indigenous equity capital would make state management more alert and provide a direct check in addition to the indirect one of the legislature.

- 10.11. Unemployment in a developing economy due to the process of growth.—One of the effects of the growth and modernisation of an economy is that more efficient mechanical and capital intensive processes and products replace the traditional ones. The result is that the craftsmen in the traditional trades are squeezed out of the market and become unemployed. There are, however, two amelierating factors. Firstly. this process of substitution is generally slow because the supply of capital is not very abundant. Secondly, for this very reason as well as on account of welfare considerations, there is a deliberate effort to spin out this process so that there is sufficient warning for the newer generation. It may also be noted that in this stage, the annual accession to the labour force is so great that this small margin of technological unemployment is hardly sensed to any appreciable extent. Moreover, we find that the weakest of the traditional handicrafts tend to be eliminated by the very first impact of foreign competition. Those handicrafts which survived this first impact in the past were able to adjust themselves to the changing conditions by taking advantage of the new external economies. Others are deliberately fostered with the objectives of saving capital and providing relief employment.
- 10.12. Unemployment in a developing economy due to imbalance in the economic activities.—We need not claborate here the analysis of how intrusion of unforeseen factors and unrealised calculations of the logistics of growth may be responsible for the appearance of bottlenecks, excess production in some lines and similar other features creating disequalibrium in the economy and causing unemployment. But such imbalances have got to be regarded as normal ailments which would persist in varying forms in every growing economy, whether in the transitional stage or after the attainment of maturity. We have seen that such imbalances may arise even in controlled and planned economies on account of imperfect foresight or intractability of nature. In a free economy these causes may be reinforced by the unco-ordinated nature of the entrepreneurial decision. They are likely to be more frequent in the process of rapid transition like the disarray resulting from the rapid march of an army along a wide front.

11. Unemployment in the Developed Countries.

11.1. General remarks.—One of the most developed branches of the science of economics is concerned with the study of business fluctuations and unemployment in the advanced countries. It has been the main pre-occupation of the economists since the

can indicate here only the broadest features in so far as they bear on the problem before us. In a developed economy, unemployment means a decline in the volume of employment for a period below the normal level in the continuously rising curve of employment over long period. It is primarily due to a fall in the process of production for one or more of a large complex of causes. Such unemployment due to business recession is quite different from frictional unemployment caused by the inevitable process of growth resulting from technological advance in the transitional stages as well as in a mature economy. It is also different from seasonal unemployment in certain trades and localities which is a common feature in any stage or any system. We may look into the more important causes and features of the lapses from full employment as defined above.

- aggregate cost and aggregate demand.—A very common cause of recession in economic activity in the advanced countries is the ever present trend for saving to create a gap between aggregate cost of production and aggregate demand. This is accompanied by the parallel tendency of growth to fill in this gap by the expansion of credit facilities and by means of measures adopted by the state. The working of these forces is so finely balanced that a perfect equilibrium is not possible and the economy moves on the legs of inflationary and deflationary trends. These trends generally work with certain self-correcting forces and any deficiency in the operation of these selfacting forces creates recession, if the deflationary trend is not arrested by deliberate methods.
- 11.3. The causes of deficiency in aggregate demand are more complex in a mature economy.—This deficiency in aggregate demand in a mature economy is not a durable feature, but recurs now and then. On the other hand, in a backward economy deficiency in aggregate demand is due to the low level of production and income caused by the want of capital resources which limit the employment opportunities and keep down the productivity of the employed persons at a very low level. It is like a low circulatory function for want of blood. The occasional deficiency in aggregate demand in the mature economy is the result of a temporary fall in the effective demand of the consumers leading to a gap between the aggregate cost of production and the aggregate sale proceeds. This fall in the aggregate demand and aggregate sale proceeds may be due to the failure of the economy to fill the gap in effective demand caused by saving. It may be due to the miscalculations or recession in the confidence of the entrepreneurs or a fall in production in some important sector. It may originate in the fall in the orders of the middlemen to the manufacturers. Or it may be due to and originate in monetary causes. It may be initiated by a shift in demand or consumer preference hitting some important branch of the industrial sector. It may even begin in overproduction of commodities or manufactured goods in some sector subject to very inelastic demand. These are just a few examples to show the complexity of the causes in order to emphasise that there are no patent remedies for this category of unemployment and that each situation has got to be met by its own appropriate measures.
- 11.4. Imbalance in production caused by the time lag between decision or planning and its execution.—We have seen how there is no economic system which is perfectly free and which is wholly operated by the market forces of demand and supply. Nor it is possible to establish a complete regimentation of the economy because neither human behaviour, nor natural forces, nor the compounded behaviour of the economy built up on the basis of the last two factors can be regimented completely. In every economy, whether free or controlled, it is for human agents to take decisions on the basis of the data available for calculations for forecasting in the eternal twilight of uncertain future. Hence, even in a socialist or controlled system, the picture of the

- economy, as it unfolds in time dimension, may differ from the one calculated according to the advance decisions. And the more advanced an economy is, the larger is the number of factors to be considered and the longer is the period between decision making and its fruition in which unforeseen causes may intrude. The result is that in the process of the flow of production, the proportion in which the goods are produced may deviate from the structure of the aggregate demand. Again the restructuring of the productive capital appliances takes even longer time. For these reasons, a continuous equilibrium of the structure of production with the structure of demand is almost an impossible task. In a socialist economy, price and consumption control measures may veil this imbalance during the period of the restructuring of the capital appliances. But in a free market the imbalance immediately creates cost-price disparity and leads to a slackening of production and employment in the industry in which demand has receded.
- 11.5. Recession and unemployment as an aftermath of inflationary prosperity.—While the Keynesian analysis of deficiency in aggregate demand as the cause of cyclical unemployment still looms large in economic literature, the lessons of the post-war period in the West have again high-lighted an old diagnosis in a new form. What happens is that the normal process of growth, or such spurts as are created by technological innovations, tend to create optimism and inflation. It is this trend which West Germany and Britain sought to control in 1957-58 by credit control. But creeping or slow inflation, as the world has been witnessing, of about 2 per cent annually even in the most carefully controlled currencies, is hard to control. Inflation induces consumers to convert the depreciating cash into durable consumer goods or into gold, land and houses. This behaviour gives further fillip to inflation. Next, businessmen also intensify investments both in order to profit from the rising prices as well to escape the depreciation of more cash holdings. But long range investments take time and are unco-ordinated in a market economy. Hence, after a lapse of time, the economy is landed in a situation of large excess capacities of some industries with consequent slackening of production. This specific recession is relayed to the entire economy because, as we have seen, both prosperity and recession are self-propagating. This depression, which follows when the artificial stimulus of inflation has spent itself, has been likened to the mental depression following the over stimulation in a man of a drinking bout. विकासित स्थान
- 11.6. Frictional unemployment in an advanced economy resulting from the normal processes of growth and change.—An advanced economy tends to advance even more rapidly than the economy emerging out of the previous state of stagnation. Hence it is continuously subjected to the strains and stresses of permanent dynamism. Changes and innovations initiated from the side of production owing to technological advances render large volumes of capital appliances and skill obsolete and necessitate a restructuring of the economy. Generally they come in slowly and do not produce a shock. Moreover, industrial skill is often of a generalised type and readaptation is easier than in the days of the handicrafts. But in any case, the transition means a readaptation and a certain margin of frictional unemployment corresponding to the continuous change in technology or consumer preference which is taking place ceaselessly. The rigidity of the trade unions, however, makes such adjustments and mobility difficult.
- 11.7. The difference in the imbalances and their results in a free and a socialist economy.—In the system of free enterprise or private capitalism decisions by the numerous independent enterprisers are taken according to the indications and forecasts of the price mechanism and the market forces constitute the main co-ordinating authority. On the other hand, in a controlled economy, the co-ordination is secured deliberately according to a predetermined plan. Hence, the overall picture of the growth is likely to be more definite in a socialist pattern and the data for cal-

culations are likely to be richer in it. We have, however, seen that under any system, all forward calculations are made by human agencies subject to the same chances of errors in calculation, the uncertainly of the economic forces and the intractability of the natural factors. The difference in the power to control the results of the imbalance on employment lies in the fact that in the socialist system both relative prices and consumer choices may be controlled and manipulated with a view unemployment and convert it into under-employment. It is by these methods that the socialist countries can claim to have eliminated imbalances, business recessions and unemployment. It is in this way that in a socialist economy, unemployment itself, like income, is rationed and shared out in the entire community. The economic system itself, along with the usual hardships in vitable in a growing economy, is made acceptable by means of ideological indoctrination. Nor is this acceptance a mere imposition, and it often arises out of a crusading spirit for a cause and the hopes of a golden age in the future. This is another example of attitude as a powerful factor in economic growth,



CHAPTER III.

Mass Employment, Relief Employment and Self-Employment of Residual Work Force.

- 1. The load of redundant labour force in a backward economy and in the first stages of development.—In the last chapter we have seen how the greatest drag on rapid economic development and on the efforts to get into the stream of a self-propagating economy in the early phases of the growth of a backward economy is the difficulty of capital accumulation racing against an increasing rate of the growth of population. The result is that even though rapid economic development creates expanding avenues of employment, the employment opportunities fail to keep pace with the growth of population, and every year sees a mounting backlog of the unemployed residual labour force. This residuum consists mainly of the rural population even though the increase of urbanisation which begins with the start of a growing industrialised economy tends to create a growing margin of the urban unemployed as well. In the first stage of growth of economy, however, the entire structure of employment undergoes a rapid change which makes a marked impression on the unemployed population by creating new channels of employment. Thus, we find that
 - (1) with economic growth, the structure of demand and consumption gets more diversified and an increasing percentage of the income per capit is spent on a growing variety of goods and services. Hence, the entire structure of production is diversified and labour is attracted to new channels of production and services by the higher remuneration in the organised industries.
 - (2) economic growth also means a continuous absolute increase in the flow of capital goods to aid production per worker which leads to a continuous increase in the marginal productivity of labour and of the wage rate. This tendency attracts labour to industries from agriculture and crafts.
 - (3) technological progress, however, affects agriculture too. Progress in ehemistry, biology and engineering enable the same area of land to produce more and the productivity of each farmhand also increases. One result is that a released from farming -farmhands are ofgrowing number absorbed $_{
 m in}$ industry, commerce occupations and are service. In this way we find that, whereas in 1905 one farmhand eould produce food for only 7, today he produces for 15. farmhands to manage every 1,000 acres In England, there are 25and production per farmhand is 17 tons. On the Continent, with a larger density of farm population, production per farmhand comes to only 10 tons. The percentage of occupied or economically active population in agriculture decreased in Great Britain from over 12 per eent in 1881 to 5.69 per eent in 1931 and 5 per eent after the war; and in Germany from 42.2 per eent in 1881 to 28.9 per cent in 1921 and in France from 42.37 per cent in 1882 to 34.50 per eent in 1921.
 - (4) with every increase in income per cap'ta which increases both the capacity to consume and to save and invest, very large demand is created for numerous kinds of services of transport workers, wholesalers, bankers, retailers, teachers, artists, caterers and so on. This leads to a large number of people engaged in farming or farm labour to shift to these lines.
 - (5) economic growth has also gone hand in hand with the expansion of the functions of the state and a corresponding increase in the number of people engaged in administration.

- 2. The problem of the unemployed residual and redundant mass of population on land in the rural areas.—But while the growth of urbanisation, of industrialisation and of the creation of a reserve of labour in the industrial areas as well as diversification of the rural economy would tend to draw into these channels a certain amount of labour force, we shall continue to be face to face with an enormous mass of the recidual unemployed and under-employed labour force in the rural areas for a long time to come. We have characterised it as the redundant population on land and have sought to measure it in Chapter VI. We have calculated this redundant population to have been about 4.73 lakh by the year 1953. It is rough that increase in popula in world mean an addition of about 5.50 lakh persons during the seven years from 1953 to 1959 which makes a total of about 4.20 lakh at the end of 1959. However, there have been appreciable economic developments, all over India during the present decade, and Bihar, too, had a share in them. Secondly, it is considered that the migration of the rural population to urban areas had been going on at least at the same rate as in the last decade. Finally, the developmental activities in West Bengal, Assam and Uttar Pradesh might have been drawing more of our rural population as seasonal emigrants to those states. We have got no knowledge of the extent to which the redundancy of the working population in the agricultural sector might have been reduced by these causes, and it seems impossible to venture any guess estimate, though there is little doubt that the magnitude of the problem is none the less the same.
- 3. Mass employment, relief employment and marginal self-employment: definitions .- It is with a view to cope with the transitional feature of an accumulating backlog of unemployment in the early stages of our developing economy, particularly in the rural areas, with which we are face to face, that the Committee is making special r commendati s on the mothods of mass imployment, relief employment and marginal self-employment. The meaning of these terms may be explained here first. By mass employment is meant a large scale employment of unskilled rural population and youngmen, moved to volunteer for nation building activities, in response to ideological appeals. These activities are generally such that the alternative of manual work without large capital appliances is possible. Terracing of gentle and even moderate hill slopes, reclamation of land by methods other than by he use of heavy machines, construction of dams and roads, soil conservation measures of various kinds are examples of such activities. This concept implies a ce tain amount of mass scale operation in which a spirit of contagious enthusiasm is more prominent than the monetary reward itself. Our system of shramdan is a method of mass employment. As distinguished from this method, relief employment measures may be fairly decentralised and may even be suitable for being fitted into planning at the village level. They may also be used for unemployment relief for small groups and classes. Hard manual labour and test works of the Indian Famine Code are examples. By marginal self-employment we understand the employment of persons and families in such occupations in which they are their own masters but the earnings are not adequate enough for the occupations being considered as durable components of the occupational structure of the economy. We shall see how quite a number of the village industries may belong to this class. They have a valuable part to play in easing the strains and stresses of a growing economy and they make an appreciable contribution to the national income in the aggregate. They also bring in a sense of emotional satisfaction and material relief to the poorest families which are not to be despised. But the earning capacity of the families in such industries is so low that as economic opportunities expand and the marginal productivity of labour rises in other sectors of the economy with capital accumulation, such industrics with the traditional method of manual production are bound to die a natural death. We shall now examine these hree types of employment one by one.

- 4. THE CONCEPT AND METHOD OF MASS ENPLOYMENT OR Shramdan.
- 4.1. The technique of mass employment as a method of overcoming the paucity of capital resources and providing employment.—The technique of mass employment, in the sense it has been used here, is a new one worked out and practised systematically with clearly defined objectives during the last few years in certain communist countries. The broad objective of the technique has been to devise a set of means and measures to achieve a revolutionary leap over the vicious circle of an under-developed economy with limited capital resources and the resultant limited capacity to save and invest which itself is threatened with suffocation by a rapid growth of population. This system of mass employment in construction work was very widely and usefully used during the last war for numerous kinds of earthwork like the difficult Chunking road from the Indo-Burmese war-front. The technique has been continued by the communist regime in China. It has been used to a considerable extent in the Soviet Union for the developments in Siberia and in the Arctic regions. The method has thus been adopted as a regular part of the technique of a forced economic growth in these countries.
- 4.2. Mass employment and relief employment as a revolutionary strategy in planning the growth in an under-developed economy and creating capital assets.—The system of building up large overhead works by the investment of more labour in China during the last few years is regarded by some as a real revolution in the strategy of planning and control of economic growth. The dominating limitation of a backward economy has been considered to consist of the low per capit; income of the people as a result of the want of capital resources and the vicious circle of the incapacity to save to build up capital equipment. It was considered that such a country could be lifted out of the rut of poverty only if it could borrow from abroad or could strike some hitherto unknown source of exportable wealth like petroleum of the Near and Middle East. The huge mass of human resources of a growing population was not considered to be an asset but rather a slithering dead weight on the economy Tin as much as the slow irrerease in national income which could be brought about by all serious efforts would be eaten up by the rapid growth of population characterising a backward economy dominated by the Malthusian law of population growth. This has not only been a theory but also a historical fact. It is now realised that this dead-weight of the mass of poor population may be converted into the flywheel of progress through the sparking plug of the technique of mass employment.
 - 4.3. The difficulties of adopting or copying totalitarian methods of approach for the building up of attitude in India.—It is not easy for a democratic country like India to copy the totalitarian methods of approach for enthusing the masses and building up their attitude. The difficulty primarily lies in the fact that eontrary to the common belief of every individual thinking for himself, it is human nature to economise energy in thinking. The average man is as ready to disbelieve as to believe under the impact of suggestion and propaganda. In a democratic country there is freedom of expression and of association. Hence, as a mere political strategy, any opposition party is always on the look out to point out and magnify the flaws inherent in any plan of work devised by man and in any scheme adopted by a ruling party. Thus the masses are presented with divided opinions and conflicting attitudes and the building up of a mass attitude becomes difficult. As against this, in a totalitarian country with a single party, an all-pervading eadre of party-men to function as leaders, guides, and foremen and with no plural voices of a democracy to create doubts, uncertainties and differences in the attitude of the unthinking masses towards the plans and schemes of the state, mass enthusiasm can be whipped up more effectively. For the same reasons this enthusiasm can be harnessed and sustained over long periods beyond the spurt of the initial impulse. Hence very spectacular as well as substantial achievements can be attained by them the like of which may not be possible in a democratic society. At the same time, the society and the government

of an under-developed country are highly vulnerable to destructive propaganda on account of mass unemployment. The situation is rendered all the more explosive on account of the juxta-position of unemployment of educated persons and mass unemployment of an ignorant and poor population living in misery and semi-starvation. One of the lessons of recent and current history is that it is the starving masses working under the leadership of a dissatisfied intelligentsia which has tended to barter democracy and individual freedom for dictatorship and a promise of bread.

- 4.4. The Shramdan movement as an appropriate line of approach in India.—In view of the difficulties noted above, the recent efforts to place the measures of the state for economic development on non-party lines and to invite the collaboration of every party and any social service organisation for the purpose is the only appropriate approach available. It is reported that the volunteer labour force which offered to work on the Kosi embankments in the initial stage in response to the appeals for Shramdan, and consisted of people of all classes from educated persons, college and school students to the unskilled rural labourers gave a good account of itself. It is desirable that the experience of organisational work gathered in course of this experiment is utilised for making Shramdan a regular feature of our constructive efforts. It is also desirable that the methods of appeal for whipping up mass enthusiasm, for creating a sense of urgency and emergency, and for sustaining this enthusiasm are examined objectively and scientifically.
- 4.5. Mass employment in permanent-improvement and transformation of the geography of the State.—Many under-developed countries besides Russia and China have sought to transform the geography of the country by means of mass employment on large scale works with manual labour. Their plan and programme have included such huge works as river taming of various kinds, reclamation of marshes, winning of land from shallow seas, checking the encroachment of deserts by the provision of shelter belts of trees, desert reclamation by diverting rivers to them, construction of multi-purpose river valley works, other works for the conservation of rain water, reclamation of inundated regions, large schemes for soil conservation in the regions of headwaters of rivers by means of afforestation and coverage of hill slopes and foot-hills with vegetation, and so on. Such works were not unknown to primitive civilisations when all the work had to be done by man without the aid of mechanical appliances. In our own time Fascist Italy was able to convert the sand dunes and bare hills on the sea coasts of Cyrcnaica into smiling vineyards by first covering them under wattle. Systematic large scale afforestation of hill slopes by carrying earth to pockets dug and blasted in bare rocks in the Central European countries and in the Alps regions is a remarkable example of man's success in taming nature. Russia's massive achievements, with mechanical aids as well as without them in transforming the geography of many regions are well known. The details of these appropriate measures suitable for Bihar are given in the chapter on the employment potentials in the primary sector.

5. THE CONCEPT OF RELIEF EMPLOYMENT AND DIFFERENTIATION FROM MASS EMPLOYMENT.

While the basic feature of mass employment is that the work is taken up on a large scale and is built up on the foundation of a specially worked up mass enthusiasm by appeals of patriotism and social service, relief employment looks primarily to the individual or group needs for relief. The similarity is that neither method aims at paying a market rate of wages which a poor community cannot afford on large scale plans of employment for converting wasting labour force into forms of durable capital. Relief employment, however, may be organised on a mass scale as provided for in the Indian Famine Code. It may also take the form of a decentralised scheme for providing the means of livelihood to individuals and families. The system of hard manual labour in times of scarcity is an example. Thus the essence of relief em-

ployment is to provide work in order to put purchasing power into the hands of the un-employed distressed families by methods which would not come into existence as a result of the operation of the market forces. The meaning of relief employment descrives to be extended one stage further to include the measures of a more durable nature for tiding over the strains and stresses of the transitional economy by means of subsidising and nursing such village industries and occupations as may not be able to stand on their own legs but provide a valuable and helpful sphere of gainful activities during the transition to a developed economy. Here, however, we are verging on the next category of marginal self-employment.

- 5.1. Relief employment: its character.—If large scale mass employment can be offered at the market rate of wages, it calls for no explanation. But an explanation and a justification are necessary for the proposal for preparing large scale standing schemes and keeping a standing offer of employment for all who are prepared to work on a sub-marginal wage rate or for a subsistence allowance. Now, in a backward economy, a lower rate of remuneration is forced by the low marginal value of production due to the low per capita availability of the capital resources and also on account of the deliberate policy of employing less of the labour saving capital appliances with a view to employ more labour. This deliberate policy of making the work less capital intensive even when there is choice for providing a more efficient method of work, is another important characteristic of relief employment on a large and organised scale. Moreover, relief employment schemes may be such as are taken up for providing work even if such work has not got a high preference value in the normal calculations of the economy. The social values of such measures arise out of two important considerations. Firstly, there is the objective of utilising a wasting resource like labour. Thus, if a lakh of men are idle to-day for want of capital, or because they have not been organised for work, the work energy measured as a lakh of man-days is lost for ever. And yet, although these men are not contributing anything to the flow of production, they must draw on the consumption resources of the community in some way. If, however, by means of persuasion, guidance and organisation, this energy could be harnessed for pulling out obnoxious weeds or planting flowers and shrubs on roadsides or excavating tanks or building roads, these wasting assets are converted into the capital assets of the country or new amenities have been added to the heritage of the community. The second consideration arises partly out of the last one. The resources of the community coming into the hands of the state through taxation and the earnings of the state enterprises are limited. But the needs of the community, like those of individuals, are limitless. Hence the state has got to draw up an order of priorities and preferences for the outlay of its resources. The result is that many enterprises and socially desirable activities, which could have been taken up if the state resources were more ample, are placed below the margin of the selected list. The other side of this consideration, therefore, is that if these sub-marginal schemes were made cheaper, they would become well-worth being taken up. This is the rational justification for large scale relief employment schemes being offered at lower than the market rate of remuneration. The justification for decentralised and subsidised relief occupations is the same. But the method of fostering and managing them is different. The broad principle here is to maintain the income earned in these occupations at a higher level than what it would be able to attain under the competitive system of the market.
- 6. The concept of marginal self-employment.—Self-employment has got a very wide sphere in a backward economy and an appreciable scope even in a developed economy. Here we are to consider only that margin of the self-employing occupations and trades which are not likely to survive in their present form on their own merit when a developing economy provides scope for higher levels of earning. The line of distinction between relief employment and marginal self-employment is thin and the only

difference between the two is that whereas the relicf employment measures have come within the sphere of the patronage of the state, marginal self-employing coccupations still continue to struggle on their own account and are able to linger within the selfemploying sector on a marginal level of earning out of mere inertia against mobility or because the families and persons in those occupations have failed to find more lucrative employments or occupations. It is in this way that numerous families are able to earn a poor living by collecting leaves and twigs for fuel, picking bones of dead animals, gathering roots and seeds of various kinds from jungles and similar other activities like those of the rag and bone men in Europe. Very often such employments receive encouragement from the development of other activities. Thus the development of soap-making as a village industry from non-edible oils enables some women and children to earn a living by collecting oil-bearing see's from roadsides and jungles. Development of hand-made paper making encourages the collection of wild fibres or other plants suitable for pulping. The establishment of bone-meal digesters would provide employment for bone pickers. The development of linseed fibre industry would provide employment in the collection of the linseed stalks which are usually thrown away by the cultivators as only very small quantities are grown by each cultivator. Salt-petre making may be regarded as a marginal self-employing occupation. Even hand-spinning would be a marginal self-employing occupation if state patronage had not been extended to it. An examination of the marginal self-employing occupations logically leads us to explain here at one place the main features of the entire self-employing sector because this category cuts across the three sectors of primary, secondary and tertiary occupations examined in details in a number of chapters later on. Moreover, the entire field of self-employment provides a vast scope for the employment of the mass of the people without putting the strains of providing jobs for them on the state.

7. MEANING AND SCOPE OF TERM SELF-EMPLOYMENT.

of our occupational statistics is the predomi-The most striking feature nance of self-employment. This is a feature of all the backward economies of the world before the coming in of an industrial revolution when superior productivity and wage paying capacity of mechanised industries reduce the scope for the small family enterprises, small workshops and Agriculture, however, continues to be predominantly a sector of self-employment even in the advanced countries unless the state has eliminated the independent agriculturists, as in Russia and China. The essence of self-employment is that the worker is his own master and decision taking authority in every respect. He has to find his own capital, to plan the investment of his resources and to take the risks. He is his own manager and buying and selling agent. He is free to associate with others for common objects or to work completely on his own account. Thus the farmer working with his family members, the small craftsman, the shop-keeper, the hawker, a person rendering service like a washerman or a barber, an individual engaged in any of the learned professions and so on, all belong to this category of the self-employed persons. In the context in which we are examining this subject, we have to consider the owners of very small enterprises employing one or two helpers like the master craftsman of the days before the Industrial Revolution as self-employed. The Census authorities included any self-employed person who hired even one wage-earner in the category of associative enterprise and counted him as an employer. But even this extended interpretation and application of the term employer leaves self-employment as the dominant feature of our economy. The statistics showing the ratio of the independent workers to the total number of occupied persons in each class, which have been given in this chapter bring out the strength of this generalisation.

7.1. Place and significance of self-employment.—The significance of this category of the economically active population from the point of view of the terms of reference

of this Committee is now explained. Firstly, it is clear that in a backward economy or in the first stages of economic growth, the organised industries in the public or the private sector a ong with the other avenues of service would be unable entire labour force coming on the market. Secondly, in a the developing economy there is a growing stream of persons coming on the labour market and seeking work as salary and wage earners and the the organised industries would find it impossible to provide work for all of them. Thirdly, from an examination of these trends, it is clear that, in a growing economy, the self-employed class tends to become residual in character; consisting mainly of these who are not able to find more profitable wage work. It is on account of this residual character that a large number of industries and occupations in the self-employing category stand in need of being protected and patronised by the state in the transitional stages of a growing economy like ours. It is for this reason that measures for fostering self-employment are linked with the essential features of what has been classed as relief employment. These features, along with the social and economic values of self-employment, to be described presently, emphasise the necessity of a clear policy of the state towards self-employment.

- 7.2 Self-employing occupations are not necessarily like relief employment.—Self-employment is not necessarily relief employment in every case and many self-employing occupations can stand on their own legs without any subsidy or protection. There are certain occupations and activities in which the skill of hand, individual judgment and the test of the human eye and touch cannot be replaced by machinery. Or the occupation may take advantage of and utilise the modern economic and social overheads for survival, as the Japanese and the Swiss self-employing family occupations are doing. Moreover, there are many vocations in which service is rendered in person and not through production. This is the present position of a large number of petty enterprises. Even in the U.S.A., the land of giant industries, out of about 9.23 million enterprises, about 8 million were small self-employing ones including 6 million farms in the year 1945.
- 7.3. The emotional satisfaction of self-employment and training in initiative and enterprise.—In a backward economy, self-employed persons, even if their standard of living and earnings are lower than those of the wage-earners, are generally free from a feeling of frustration and hostility towards the society. The worker derives an emotional satisfaction from being his own master and being employed. Thereby he feels the satisfaction of being integrated into the society. He takes the ups and downs of life as they come in the spirit of a free enterpriser and risk-taker. He developes initiative and enterprise because he is the master of his small world and he has got to think for himself according to the best of his ability. Although the age of machinery and large-scale enterprise is limiting the scope for the rise of self-made masters as took place in the last century, self-employment even now tends to foster hope, ambition and willingness for hard work such as may not be stimulated in mere wage-work.
- 7.4. Self-employment means the maximum employment of family labour and strengthens the family.—The self-employing sector of the economy provides work for the entire family and makes the family an economic unit as well as a social unit. These two aspects mutually nurse each other and the integrity of the family is strengthened as a result. The family has always been regarded as the strongest factor in social stability and thus self-employment contributes to counter the disintegrating social forces.
- 7.5. Economy of capital resources.—During the early stages in the development of a backward economy, self-employment and the functioning of the family as an economic unit enable production to be carried on by less capital intensive methods and capital

resources are thus released for such enterprises as afford no choice of an alternative way from very high capital intensiveness. Moreover, the self-employing enterprises relieve the economy of the responsibility for and the cost of housing the labour force, meeting the compensatory charges for retrenchment or layr-off and other burdens of a wage system on the economy.

7.6. Self-employment opportunities reduce the burden of unemployment relief on the state.—The self-employing sector relieves the state of an enormous load of responsibility and anxiety over the problem of mass of unemployment. The small self-employed worker is an ubiquitous servant of the community who seeks out every obscure avenue and scope for rendering a service demanded by the community and making a living out of it. He creates opportunities which may not be easily visible to others. Being his own employer, he has no guarantee of a minimum wage from the community and he renders many services and produces many articles of use which would not be possible if they were to be put on the market through wage work. The significance of this aspect of self-employment is that in a poor and backward economy, an appreciable margin of the flow of wealth is created simply because of the existence of self-employment opportunities where the cost-price equilibrium is not a rigid regulator of economic activity and the productive activity is also a way of life.

8. THE MAGNITUDE OF THE SELF-EMPLOYING SECTOR OF OUR ECONOMY.

- 8.1. The agricultural ector.—Of the 127.07 lakh of men and wemen gainfully occupied in 1951 in the entire economy embracing the agricultural as well as the non-agricultural sector, only a very small fraction of the total could be classed as employees in the proper sense of the term. In the agricultural occupations, which accounted for the employment of 110.50 lakh men and women, 71.19 lakh of men and women were self-employing owner-cultivators and 9.85 lakh persons considituted the self-employing tenant cultivators. The non-cultivating owners of land numbering 81 thousand were also self-employed. Only 28.63 lakh men and women, constituting the cultivating labourers, might be treated as employees, but in a modified category for two reasons. Firstly, they were included in this class on the basis of agricultural labour being their main source of income. But our rural surveys show that hardly any appreciable number among them depends purely on wages. They are mostly of the multiple activity status of the Census. Secondly, we may use here the distinction made in the legal terminology between contract of service and contract for service. The agricultural labourers belong to the latter category as agricultural labour is employed on daily wages and the labourers are free to work whenever and wherever they like or not to work at all. It is only the plantation labourers, who are not included here but belong to the Division Zoro of the non-agricultural sector, who can be rightly classed as cent per cent employees.
- S.2. The non-agricultural sector.—Turning next to non-agricultural occupations accounting for 16.16 lakh men and women, we find that the Census tables have classified them in three categories of (1) the employers, (2) the employees and (3) the independent workers. The employers numbered only 72.70 thousand. The total number of employees was 7.86 lakh while the independent workers numbered 7.57 lakh. It has already been hinted at that many even of the persons returned as employers are really small self-employed enterprisers and were included in the employer category on account of the Census definition of associative enterprise. A glance at the figures of the employers in the Divisions 2, 3, 4, 6, 7 and 9 whould show that many of those who are classed as employers are really the more prosperous persons of the self-employed class.

The following are the statistics of the non-agricultural occupations which bring out the predominance of self-employment in our economy (1951 Census.)

TABLE 8.

Division and description of the division.	Total number of occupied persons.	Number of persons who are self-employed.	Percentage of the self-employed.
	2	3	4
0 Primary industries like plantations, stock-raising, fishery, etc.	46,816	36,241	77.4
1. Mining and quarrying	1,66,712	7,091	4.3
2. Processing and manufacture of food-stuff, textiles and leather	1,44,122	1,05,792	73.4
3. Processing and manufacture of metals and chemicals	76,764	20,853	27.2
4. Processing and manufacture of others including carpenters, potters, bangle makers, etc.	91,817	72,946	79.5
5. Construction and utilities including construction and maintenance of roads, railways, bridges, buildings, irrigation works, telegraph, telephone, etc.	66,646	29,877	44.8
6. Commerce including retail trades, wholesale trade, banking, money-lending, etc.	3,75,996	2,99,092	79.5
7. Transport, storage and communication including transport by rail, road, water, air and post and telegraph.	99,605	27,925	28.0
8. Health, education and public administration including registered medical practitioners, vaids, hakims, compounders, nurses and midwives, vaccinators, other hospital staff minus sweepers, teachers, research workers, employees of Government.	1,12,433	18,104	16.1
9. Services not elsewhere specified including domestic servants, barbers, washermen, those engaged in hotels, restaurants, eating houses, etc.	4,35,199	1,39,022	31.9
TOTAL	16,16,110	7,56,943	46.8

^{9.} Necessity of certain measures of protection for occupations in the self-employed sector in the initial phases of developing economy.—It would appear from the above discussions that the self-employed sector of the economy is one of the most important sectors embracing a vast bulk of the population. The state should, therefore, make every possible efforts to ensure that persons engaged in such occupations are given all the protection necessary particularly in the initial stages of the growth of economy when they are likely to suffer some serious setbacks. We would like to illustrate this by a few examples. Thus a large number of potters in our rural areas earn their livelihood by making earthen pots from earth drawn from the land which belonged to ex-landlords and which have now come under the possession and management of the state after the abolition of the zamindaries. Any restrictive measures to prevent potters from enjoying the facilities in the same manner as they had been enjoying before are likely to detach them from this occupation and force them to seek for other avenues of employment which they would not otherwise do. Similarly, Government may consider how to assure the population which depended on the produce of the forest for their livelihood before the forests came under the State control and management, the income which they used to earn by the collection and sale of leaf, wood and other forest produce in the past. It is not possible for us to suggest any concrete measures in this regard except to say that a re-thinking may be necessary on the subject of Government's scheme of management of forests and zamindaries with a clear objective that it is done in a manner which would help and not hinder the economic activity of self-employed people.

CHAPTER IV.

The role of the Central Government, of the State Government and of private enterprises, in relation to employment.

- 1. The personal and the impersonal factors operative in an economy.—We are primarily concerned with the question of employment in the state of Bihar. But the economy of any state, of which employment is one of the functions, is a part of the economy of India as a whole, working in the background of the world economy. In order to understand the forces bearing on employment in the State, we have to take into consideration all the provincial or state as well as the national (as also the world) factors into account. Before we take them up, a cross classification of the economic factors from another point of view would be useful. The forces and factors operating on and in an economy may be put into the following classes:—
 - (1) the impersonal forces of the market, whether local, national or international;
 - (2) the deliberate personal decisions of (a) private entrepreneurs and (b) of the Government, whether national or state.

The market factors and forces may be favourable or adverse for the economy; and in whichever of the two directions they operate, they tend to be self-propagating and to be giving rise to multiplier effects which we have examined at some length. The objective of personal decisions may be to curb and counteract the adverse forces and to reinforce those which are favourable. As against these passive function, the initiation of purposely chosen factors of susten nee and growth of the economy have now become even more important functions of personal decisions. This last remark means that while the impersonal market forces are passive, it is the personal decisions by the private entrepreneurs or by the business agencies of the state which are responsible not only for correcting the market forces, but also for initiating and generating new forces and factors in the economy. Again, we see that while the personal decisions of the private entrepreneurs have only a limited sphere confined to each enterprise for the exercise of promotional as well as managerial responsibilities, the assumption of economic functions by the state mak's the entire economy depend on the conscious decisions of the government except for the margin of the natur l forces, market forces and the world forces which may defy the control of a government.

2. The regulatory functions of the state.—We have already seen that apart from any ideological considerations, the state has, at first gradually and later on very rapidly, assumed responsibilities for controlling the economy and partly managing it, too. Then, on ideological grounds, the state assumes complete responsibility for promoting as well as managing the entire economy. In the beginning, the state came into the economic sphere whenever the interest of the government required it. With the growth of the factory industries and the polarisation of the employer and the employee classes, the the state had to intervene in the automatic working of the economy with a view to protect the working people on account of their weak bargaining position. The next motive of the state to control the market forces arose out of the need of protecting the consumer from monopolistic enterprises. The emergence of giant enterprises also began to squeeze out the small ones so that competition, the very basis of a liberal economic system, was in danger of being completely eliminated. Finally, as the economy became more complex, it was found that even the market forces were becoming wayward, as shown by the recurring trade cycles, and the state alone could control them to any extent.

- 3. Growth of the positive economic functions of the state.—These, however, only explain the reasons for the state assuming responsibilities for the control of the market forces by conscious decisions. Positive economic functions of the state began with the efforts to provide a number of overhead facilities for the economy arising indirectly out of the political and administrative responsibilities of the state. The First World War gave a definite trend to these positive economic policies of the government. But the most powerful cause for converting the state into an economic functionary was the urgency felt to speed up the growth of a backward economy. That is why planning was necessary for the Soviet Union. In recent years, this has been the main motivating factor in practically every under developed and developing country of the world. Nor should we forget the practical demonstration of the success of the socialised Soviet economy and of the large scale state enterprises during the Second World War which have also proved the practicability of the state managing the economic life of the community as well promoting ventures in new fields. The fact is that progress in science and technology, on which all economic developments depend now, can no longer be the direct responsibility of individual enterprises, or even of whole industries, on account both of costs and of the telescopic vision with which they have got to be planned for distant returns. Research is now definitely a social overhead.
- 4. The spheres of economic responsibilities of the national and the provincial or constituent Governments.—While the general tendency all over the world has, in this way, been to reduce positively the sphere of private enterprise as also to increase the control of the state, there has been another inevitable tendency to increase the power, authority and sphere of the national government at the expense of those of the constituent states. This is because the national government is responsible as the overall guardian of the entire economy and as the sovereign political authority, for the proper administration of the underlying foundations of an economy like the currency and credit system, foreign exchange, terms and conditions of international trade, economic planning, conservation of wasting assets, and so on. More specifically, it has got to assume responsibility for providing the overheads of the economy which defy the provincial boundaries. The very unity and organic nature of the economy has tended to increase the authority and functions of the national government at the expense of those of the constituent regional governments. Thus the national government alone can undertake the planning of the economic development, and even the management of such industries and enterprises which cannot be contained within the regional boundaries, and are such as affect the entire economy and even impinge on the economy of the other countries. Again, it is only at the national level that a state can participate in the working of the world economy.
- 5. The economic functions of the Central Government in India.—It is on these lines of general political and economic developments that the economic functions of the Central Government have grown up in India, too. The Centre is responsible for the management of the currency system and for the control as well as indirect management of the credit system. By the exercise of its power over finance and taxation, the Centre collects revenues and taxes not only for administrative expenditure but also for mobilising resources for capital formation for economic development. The power of taxation left to the constitutent states is limited and all residuary powers belong to the Centre. The Centre manages the debt services and neither the states no private entrepreneurs can borrow or raise equity capital without the express sanction of the Centre. The Centre would also earn, as entrepreneur, an increasing share of the national income by means of public enterprises. Further, by its powers to create currency and to undertake deficit financing, the Centre can divert large additional resources out of the annual flow of national income. By all these methods, the Centre now controls and guides most of the capital formation to an increasing extent. Even the direct investments by the Centre has been growing rapidly.

- 6. The responsibility of the Centre for the provision of the more direct economic overheads.—It is the Central Government which is responsible for the provision of the direct economic overheads like the means of transportation and communications, large irrigation works and of the basic industries. Technological prog ess through research and collaboration with foreign governments and private firms is the direct responsibility of the Centre.
- 7. The Central direction of industrial policy and development.—The control of industrial development by the Central Government requires reference both on account of the direct employment potentials in the industries run by them as well as on account of their employment multiplier value. The industrial policy announced in 1956 laid down two schedules of industries. Those in schedule A are the exclusive responsibility of the Government while those in Schedule B are to be progressively state owned with the supplementary participation of private enterprise. Schedule A includes the following industries:—

Arms and ammunition and defence equipments; atomic energy; iron and steel; heavy castings and forgings of iron and steel; heavy plant and machinery for iron and steel production and for mining; machine tools manufacture and other basic industries as may be specified; heavy electrical plants including large hydraulic and steam turbines; coal and lignite; mineral oils; mining of iron ore, managense ore, chrome ore, gypsum, sulphur, gold and diamonds; mining and processing of copper, lead, zinc, tin, molybdenum and wolfram; minerals for atomic energy; aircraft; air transport; railway transport, ship-building; telephones and telephone cables, telegraph and wireless apparatus (excluding radio receiving sets); generation and distribution of electricity.

- The schedule B industries include all the other minerals except certain minor ones; aluminium and other non-ferrous metals not in Schedule A; machine tools; ferroy-alloys and tool steels; basic and intermediate products for chemical industries like drugs, plastic and dyestuffs; antibiotics and other drugs; fertilisers; synthetic rubber; carbonisation of coal; chemical pulp; road transport; sea transport.
- In this way we find that the Central Government is responsible not only for the provision of the broad economic overheads but also for all the basic industries on which the superstructure of the economy is to be built up.

8. CENTRAL REGULATION OF THE PRIVATE SECTOR.

8.1. Control over the large and medium industries.—The Industries (Development and Regulation) Act of 1951 with the amendment of 1956 regulates 79 (45+34) scheduled industries. It requires all new and existing industries to be licensed and the state has assumed powers to regulate and intervene in the private sector if progress is unsatisfactory. The main objectives are to utilise properly the country's resources, to secure a balance between large and small scale industries and to arrange a proper regional distribution of development. A Central Advisory Council and separate Development Councils have been set up for most of them. Next, there are or Boards (like the Silk Board, various semi-autonomous bodies Board and so on) aswell as various Commodity Committees functioning specific lines. Apart from the developments in direct initiative in the planning of economic development, the Centre is responsible for the allocation of the resources, both monetary and real. The licensing of the units in the scheduled industries in the private sector covering all the important large and medium industrial units is yet another way by which the Centre seeks to allow e resources in the

economy. The Development Councils for these large and medium industries and ad hoc panels and committees are the other over all institutions under the Centre for the guidance and control of these industries. The processes of capital formation out of the profits in the pirvate enterprise units or out of the general income are controlled by the Centre through the taxation policy and through the control of the capital market and by licensing.

8.2. Patronage and guidance of the small, cottage and village industries.—Apart from the control of the large and medium industries, the Central Government has also laid down the policy for fitting into the economy the small, cottage and village industries. The Centre has also provided elaborate general and specialised administrative machineries for extending financial help, introducing technological improvements, imparting technical and technological training, demarcating sheltered markets and finding markets for their products. We shall be looking into the details of these measures in another chapter.

9. THE CENTRAL GOVERNMENT AND RESEARCH.

- 9.1. The reasons for a central planning of research.—The need and scope for research has increased with every advance in science and technology. Every important discovery in science or advance in technology leads to the need of further researches for their practical application. Important discoveries of material resources necessitate further researches for their utilisation. Conditions and requirements vary so enormously that research is no longer an occasional requirement. It is a continuous overhead and normal routine function of growth in every sphere of economic activity. It is called for at different levels of generality, as in fundamental science, and specificity for practical application of the results. The cost of research is now very high and the results are of such comprehensive application that private enterprise can touch but a mere fringe of it. It is for these reasons that it has become the special responsibility of the Central Government. Research now has got to be planned for immediate as well as long range results. The Centre, therefore, carries out the programme of scientific, applied and technical research through the Council of Scientific and Industrial Research. This body controls directly various laboratories and institutes besides making grants to other institutions, scientists and universities. It also maintains a National Register of Scientific and Technical Personnel. In view of the urgency of economic development, pilot plants have been added to a number of laboratories. Moreover in order to link industrial development with research, the Council has established regional offices at Bombay, Calcutta and Madras.
- 9.2. The research institutions at work.—The following are the national research laboratories and institutes directly under the Council:—

National Chemical Laboratory at Poona; National Physical Laboratory at New Delhi; Central Fuel Research Institute at Jealgora in Bihar; Central Glass and Ceramic Research Institute at Jadavpur; National Metallurgical Laboratory at Jamshedpur; Central Drug Research Institute at Lucknow; Central Road Research Institute at New Delhi; Central Electro-Chemical Research Institute at Karaikudi in Madras; Central Leather Research Institute at Madras; Central Building Research Institute at Roorkec; Central Electornics Engineering Research Institute at Pilani; National Botanical Gardens at Lucknow; Central Salt Research Institute at Bhavnagar; Central Mining Research Station at Dhanbad; Regional Research Laboratory at Hyderabad (for research in problems specially relating to the industries and raw materials in this area); Indian Institute for Bio-chemistry and Experimental Medicine at Calcutta; Birla Industrial and Technological Museum at Calcutta; Birla Regional Research Laboratory at Jammu-Jawi (for research in problems of industries and raw materials in Jammu and Kashmir). Nuclear

and atomic energy research, originally started by the Tata Institute of Fundamental Research at Bombay, has now been elaborated th cugh Atomic Energy Commission and a number of subsidiary bodies and aided institutes.

- 9.3. Departmental Research.—The more specialised lines of research are entrusted to the Departments concerned. Thus there are eleven Hydraulic Research Stations under the Central Board of Power and Irrigation, the Central Water, Power and Irrigation Research Centre at Khadakvasla (near Poona) having been the pioneer. The Civil Aviation Department has its own Research and Development Directorate. The old Forest Research Institute at Dehra Dun has been expanding the scope of its work. The All India Radio maintains a separate research unit. The Railway Board has established a research centre at Lucknow with other sub-stations. The Ministry of Transport conducts research through the Roads Organisation. Medical Research on various lines is conducted under the Indian Council of Medical Research. The Indian Council of Agricultural Research sponsors research in both agriculture and animal husbandry through a number of institutions. Some of the Commodity Committees also conduct highly specialised researches. Third are separate research station: for marine and inland fishery. The Nutrition Research Laboratories have been doing very useful field and Laboratory research work. The Research and Development Department, the Defence Science Organisation and the Institute of Armament Studies are under the Ministry of Defence.
- 10. The difficulties of state enterprise.—The guidance and control of the economy by the state and the emergence of the State as a capitalist and entrepreneur, however, raise some serious difficulties. It is in the less developed countries that such measures become more urgent and the state tends to be saddled with the multifarious responsibilities of economic functions apart from the traditional administrative responsibilities. In such a situation, the administrative machinery and personnel have got to expand rapidly, and in most cases, to work out their own methods for the promotion, management and control of economic enterprises in which the technique of pure civil administration is not very helpful. Business administration, moreover, requires quick decisions which are not compatiable with the usual redtapism of civil administration.

This is one of the reasons why we advocate the participation of private enterprise, both indigenous and foreign, in state enterprises and their equity capital. Foreign participation would not only ease the difficulties of foreign exchanges and technological deficiencies, but also help to build up the traditions of a higher managerial efficiency. Participation of indigenous equity capital would make state management more alert and provide a direct check in addition to the indirect one of the legislature.

- 11. The Central Committee on Employment.—The Ministry of Labour and Employment of the Central Government set up in the year 1958 the Central Committee on Employment in view of the fact that the growth of or planned and private economy has not been able to absorb the annual accession to the labour force. We have recommended the setting up of a similar body for our State and we consider that our own plans and recommendations for expanding the scope for employment in this State may be brought continuously to the notice of he Central Committee on Employment. This measure is ver important in view of the limited scope for initiative by the State Government itself.
- 12. The Central Government and technical training.—In view of the major responsibility of the Centre for economic development and the highly specialised types of technologists, technicians and skilled workers who are required for the new enterprises in the country, the Centre takes steps to provide appropriate kinds of training at different levels through training institutions in India and by deputing trainees to foreign countries. In a number of the new industrial enterprises, training of the Indian

per onnel is arranged for, under foreign experts, in course of the erection of the units and in the early stages of their working. It is necessary that the permanent employment planning organisation which we are recommending for this State should be alive to the need of securing proper representation for the training of Biharis in these lines. The Centre has also assumed responsibility for the drawing up of the plans and arranging for the establishment of training centres for technical as well as vocational training for the smaller industries even when they are being managed by the state governments.

- 13. Central Government and aids to the private sector.—All the foregoing accounts of the functions of the Centre show that the sector of private enterprise is dependent on the Government for most of its promotional as well as routine activities. Hence, in order to help and encourage important industries in the private sector, the Government extends financial assistance to private enterprise by way of loans or participation in equity capital. The Industrial Finance Corporation extends long-term loans to the large industries (the State Financial Corporations have been set up for medium and small industries). The National Industrial Development Corporation, set up in 1954, has formulated several projects for new lines of development. The Central Government takes special steps to secure raw materials from abroad. It also arranges for foreign technical assistance from abroad. To supplement the capital resources which are available here, the Government arranges for the participation of foreign firms and appropriate guarantees have been extended for the purpose to foreign capital.
- 14. The Central Government in relation to the development of the industries controlled by it and their employment value.—The development of mining and of the basic heavy industries is the responsibility of the Central Government. With the limited resources at the disposal of the nation as a whole, the Central Government has got to lay out lans not only according to the local supply of raw materials but the development also by takin~ ration a number of other economic and non-economic factors al developments. Hence there is much scope for negot aincluding tions ratch to see that the interests of t' is State are adequately faction the measures like the construction of the ment of thermal power stations for rural electrification Petroleum Refinery at Barauni. They would go a long .y of the densely populated regions of the Ganga Valley. nat a careful study of the employment multiplier values of or the ancillary and derived activities which they may promote iately. For example, petroleum refining industry itself has such a that it may give rise to a large number of activities and enterprises.
- 15. The role of the Centre, the states, private interprise and co-operatives in the management of the economy.—The consideration of the functions of the Central Government noted in this chapter, shows that the Centre is the dominant partner in the working of the entire economy. We may, however, note that the rest of the detailed responsibuilding up of the superstructure of the economy falls on the shoulders of the State Government and private enterprise. The latter is an omnibus the giant or the large enterprises as well as term and includes number of enterprises in medium, small, cottage and village industries. Private entereprise also includes the large number of self-employed persons in commerce and agriculture. While co-operative enterprises may tend to become a separate class, they are a part of the sphere of private enterprise. The role of the State Government has been examined in detail in the subsequent chapters. It may be mentioned here that the State Government, besides being indirectly responsible for helping the development of medium, small, cottage and village industries, have got wide scope, if they so desire, for participating directly in industrial development. They may participate in the Central enterprises as other state governments have done. They may take

enterprises of key importance in Schedule B. The coke oven enterprise at Durgapur of the West Bengal Government is an example. These activities are distinct from the industries or enterprises which have been or nationalised like passenger traffic by road. Very often the state government makes use of the Co-operative institutions for the purpose. A number of sugar mills provide examples as also the proposed co-operative cotton spinning mill in our State. Again, we have noted how local private enterprise is singularly lacking in Bihar and this is a strong argument for the Government undertaking large and medium enterprises for the purpose of utilising appropriately the foundations of the primary (mining) and the heavy secondary metallurgical and chemical industries which the Centre has been building up in Bihar. The direct employment value of the mining, metallurgical, chemical and other large industries is limited, but their multiplier effects can be exploited for increasing employment only by building up the ancillary feeder and derived industries like the root system and the branches of a tree with numerous nodal points. The argument is that if private enterprise fails to come forward to build up the economic superstructure which alone can solve the unemployment problem, there is a clear case for the State Government to step in.

16. Private enterprise in relation to employment.—Although the Second Five-Year Plan originally estimated the investment in the private sector at Rs. 2,400 crores against Rs. 4,800 crores in the public sector, we have to note that there is a vast field left for private enterprise in the medium and small organised industrics. The scope for these categories is brought out by the number of the Development Councils and the licences granted so far to private enterprise. Apart from these, there is scope for private enterprise in the cottage and the village industries if we accept the usual meaning of the term enterprises as equivalent to decision making units. We have still got to work out appropriate formulas for estimating employment stentials of different levels of enterprises firstly, in terms of the money va' vestments, and secondly, in terms of the multiplier effects of each ind rdal points. Finally, the employment potentials of the industrial acvment in the tertiary sector have also got to be worked out scope of private enterprise to solve our unemployment? of degree, every person who is gainfully occupied a of goods and services in the national income is cre. directly or indirectly. However, we have drawn a distigenerating and employment absorbing occupations in this respec ration of all the ancillary, subsidiary and delivered of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central, State and the large private enterprises in order the out of the Central t of demacrcation of practical value. It is desirable that we should

17. THE PLANNING AND GUIDANCE OF ECONOMIC (equipos and finite of the contraction of the

We are giving in this section a brief account of the uoisəl jo supur para para policion. We state in the planning of economic growth and of the dimespisuos of the planning of the private interprises has not been attered as they are all integrated into the national plan to which they have to conform.

17.1. The responsibility of the Centre for over-all planning and management of Central enterprises.—The oneness of a national economy internally and in relation to the global economy necessitates a central co-ordination and guidance of the economy, whatever the system of government. Hence the overall planning and guidance of our economy

is the function of the Central Government. Within this everall planning, the requirements of all the constituent states are fitted in. Secondly, the Central plan has to utilise all the available organs and agencies for the execution of the details of the plans, guidance of growth and evaluation of results.

Formally, the Planning Commission, the National Development Council and all their subsidiary organisations have only got advisory function. The execution of the detailed plans is the responsibility of the Central Cabinet Committee and the different Ministers concerned with each separate constituent of the Plan. The execution of the promotional stage and the management in the subsequent operational period may be carried out either departmentally or through separate promotional and then managerial bodies responsible to the appropriate ministries. In respect of both the promotional and managerial functions, there arises the problem of reconciling the freedom and initiative of the managers with that of national control. The solutions are being worked out on the basis of accumulating experience. The problem of the management of giant and chain private enterprises bring out the organisational and managerial difficulties of similar state enterprises, but there are additional complexities in the latter. Our own economy in the public sector has to work out its own system in respect of the management of the centrally administered large nationalised enterprises. The problem of a hierarchic management of giant business enterprises whether in a totally socialised economy, as in Russia, or in a free economy, is a different one. In each case, those who run the enterprise from the directors and general managers down to the wage-earners are not proprietors. They are all fiduciaries and trustees. But in the private enterprises, subject to rules of external control laid down by the state, the share-holders are theoretically the final authorities who get the enterprise managed by the Directors and arrange for the check on the Directors through auditors directly appointed by themselves. In the state enterprises, however, the chain of fiduciaries becomes longer. The ultimate share-holders are all the citizens of the state and even the voters are the fiduciaries of those outside the voters' list, the parliamentary and other representatives are the fiduciaries of the voters, the ministers are the fiduciaries of those representatives, and then the managers of the enterprises are the fiduciaries of the Ministries and the Government. But all these agencies, except the last one, are political. The great problem in the nationalised enterprises is one of setting up an institutional device for discharging the functions of the share-holders of the private enterprises.

17.2. Planning and execution of the plan by the state.—The drafts of the state plans are prepared by the states. After they have been fitted into the national plan, their execution is the responsibility of the state. As the state plans are organically fitted into the national plan and have to depend for funds, guidance, co-ordination and control on the Centre to a considerable extent over and above their own direct responsibilities in all these respects, each state has to set up its own bodies and liaison officers corresponding to those at the Centre.

There is one advantage for the states that, except in certain cases, they have not got the problem of directly managing state enterprises. Most of their activities are concerned with guiding, activising and stimulating the private enterprise of the farmers, the enterprises in the medium, small and cottage industries; looking to the welfare of the workers, fostering associative activities and revitalising the social framework. Hence the main organisational difficulties of the states lie in the problems of—

- (i) how best to reach the numerous private enterprises, small farmers and artisans and the large capitalist, and
- (ii) how to co-ordinate the activities and developmental functions of t e depart ments normally controlled from the State Secretariat.

The solution of these problems have been found by means of setting up certain new wings in the developmental departments and reorienting their functions. The question of the co-ordination of the activities of the departments has been solved by the setting up of appropriate bodies at the district, subdivision and Block levels at which popular participation has also been provided for.

17.3. The gap in respect of micro-planning.—These accounts show how our centralised integrated plan for the growth of the economy, built up as a co-ordinated structure, branches through various stages of detailed planning. But in a country of lakits of villages the logically complete structure would be secured only if there is the final micro-planning at the village level through which each and every individual family can be embraced within the scheme. In the Soviet Union this work at the bottom is done by the village Soviets and the factory units. In a democratic country the methods of these Soviets may not be copied without introducing regimentation. And yet micro-planning at the bottom is essential.

18. THE NECESSITY OF MICRO-PLAINING EMPLOYMENT IN DETAIL.

At various places we have referred to the need of micro-planning of employment reaching down to the village in rural and the ward in urban areas and then to individual families. We have brought out its importance in our justification for case and type studies. We have sought to bring out the basic value of individual motivation and of attitude which can be reached only by micro-planning. We have also, at places, struck a note of pessimism on account of the lack of response to stimuli from the farmer arising out of the lack of proper attitude. We have also just referred to the value of relief employment, shramdan, standing offers of work, and guidance and protection of self-employment. We have not, however, considered the subject of the possible and available agencies for micro-planning so as to reach the villages and the families. We propose considering them in this section.

- 18.1 The available and possible agencies for detailed planning.—Apart from the difficulty of reaching about 68,000 villages through any agency of the Government, its cost as well as the chances of making effective dent on the problems or poverty, low productivity and unemployment have also got to be considered. Our view is that for dealing with such a vast problem over such a vast area, we have to utilise every agency which may be available to supplement one another. These agencies may be the officers of the different development departments of the Government at the bottom, specially the officers of Departments of Agriculture, Fishery, Animal Husbandry, Industries and Forests. The Block Development agency, wherever established, is playing a great part by co-ordinating the work of all the development departments and by trying to create proper attitude among men. Then there is the Gram Panchayat. The co-operative system is another agency which can go down to every village and family. The Khadi and Gramodyog Sangh and other such bodies affiliated to and recognised by the State Khadi and Village Industries Board under the Central Khadi and Village Industries Commission are very useful agencies for the purpose. We do not also rule out other voluntary associations or voluntary efforts of other institutions. We may now consider the role to be played by such agencies.
- 19. The officers of the Development Department and Block Development Organisations. We may consider them together because by now it has been fully realised the officers at the bottom of any hierarchy can function only through some co-ordinating authority at the bottom to collect all the knowledge and stimuli from above and see that they are passed down. It is assumed that the officers know their job, but this knowledge can be made effective only if they also know in addition how to communicate it to the people for whom the knowledge is meant. We are glad to see that this latter kind of training is also being imparted to the officers.

While a considerable amount of valuable work is thus being done it is esential to know the limitations so that remedial and complementary measures may be provided. Our Community Development system is the democratic alternative of the communist method of rigidly laying down the entire scheme for being carried out by the state and the co-operative farms. We should, however, realise the handicaps under which our Block or Community Development systems work. The greatest difference is that in the U.S.A., the receptive attitude and enterprise of the farmers is already I resent which have got to be created in India. Secondly, because the attitude towards innovation is already present in the U.S.A. a considerable amount of effective publicity work is done in that country by numerous commercial agencies interested in buying from or selling to the farmers. Such an example is not altogether unfamiliar to us. Some of the best managed sugar mills in Bihar (and elsewhere) run a biological service advising and supervising in a routine way the work of the sugar cane growers by almost weekly visits of their overseers to fields of the cultivators.

Another great difficulty of the Block officers is that they have got to lock to revenue and administrative duties as well in addition to their development work. Moreover, most of the villagers who come to them do so for certain kinds of grants and other facilities as passive receipients. In this atmosphere the task of attitude building becomes secondary and the guidance function of this official body is thrown into the background. We would therefore strongly recommend that in order to make the Block Development Officers fully effective in the task of creating a proper attitude among the villagers towards development programmes so that they take more than casual interest in them, these officers should be relieved of revenue and other administrative works which may compel them, to adopt coercive measures in the interest of the State. It has been noticed by the Committee that the posting of armed constables itself at the block offices to guard the revenue collection has generally deterred the Adivasis in Chotanagpur from going as freely to the Block offices as they used to do before. This is a dangerous symptom and unless urgent steps are taken to remedy it the whole scheme of community development may founder.*

- 20. The Panchayats.—The new Panchayat system is making fairly good progress. The experiment which is being done in Bihar is quite novel. There is no attempt to graft a panchayat from above by the Government. Instead, a panchayat is enabled to grow from the bottom, and by and large, the Panchayats have given a fair account of themselves. They should be entrusted, gradually, with the task of revenue collection and village administration besides planning for the village. On account of their intimate knowledge of the people and the surrounding conditions, they are in a better position to function successfully. The State will have, no doubt, to provide guidance and leadership in the early stages of their growth; but once they are firmly developed, they would provide the most solid base for our future planning.
- 21. The Co-operative Societies.—Theoretically, and as originally conceived by the poincers in the West, the co-operative system was considered to embrace the entire field of human activities. In actual practice, the co-operative organisations have to confine their scope to limited spheres of work in conformity with the Act and rules governing them. Various kinds of co-operative societies are working and they are valuable organisations for specific fields of developmental activities. Under the existing system, it would not be possible to set up a co-operative society for micro-planning of all the activities of a village. This task will have to be left in our country to the blocks and panchayats.

^{*}Two members, viz., the Chief Secretary and the Development Commissioner do not agree with the ecommendation contained in this paragraph.

- 22. The Khadi and Village Industries Board and its affiliated bodies.—The Khadi and Village Industries activities are carried on by a number of institutions which have grown up since the twenties. These activities are now co-ordinated by the State Khadi and Village Industries Board and its Advisory Council under the Central control of the Khadi Village and Industries Commission. The principal affiliated body conducting the activities is the Khadi and Gramodyog Sangh. But other associations engaged in similar activities are also affiliated. We have studied their working with the help of one of the members of the Committee who has been intimately associated with them over a long period. The great merit of this composite organisation is that the initiative of the affiliated bodies has been reconciled with an overall supervision and financial assistance by the State Board. The State Khadi Board is mainly responsible for managing the sales emporia and the overall administration of the assistance to the associations and units engaged in developing and running Khadi and Village Industries activities. The present composite organisation is the result of the growth over a number of years during which a system of co-ordination has also been built up which both the Commission at the Centre and the State Board have very wisely sought to conserve. The operating associations have established local agencies, a directing organisation, methods of work, certain traditions of outlook and service as well as frictionless operation which have very greatly impressed the Committee. Progress has been slow, but solid.
- 23. The scope for the application of the technique evolved by the Khadi and Gramodyog Sangh in the urban areas.—In our chapter on urban unemployment we have referred to the applicability of the technique of work of the Khadi and Village Industrics organisation to unemployment relief in the urban areas. It may be noted that the job of working out such detailed schemes of employment in the industrial areas may be left to be done separately as final proliferations from the ancillary and derived industries from the basic and medium industries is rather specialised and may be taken up separately. But in the other urban areas the conditions are not very far removed from those obtaining among the rural population about which the Khadi and Village Industries organisation has built such well-tried technique and organisations. At least some of these activities may be adopted for the urban areas and others may be thought out according to the needs of the locality. The Kolhu industry has already been demonstrated as eminently suitable for urban areas. The organisation may study and examine other activities suitable for these areas. Our own studies so far show that there is need for such activities in urban areas which can be taken up mostly by the families in their own homes. There are, no doubt, limitation on many of the activities listed under the Khadi and Village Industries Commission Act being taken up in urban areas for want of raw materials and other facilities. But Khadi work is quite suitable for any locality, while others outside the list as well as from the list may prove to be quite suitable. The flexibility of the organisation and its activities is a favourable factor for these kinds of activities.
- 24. The flexibility of the Khadi and Village Industries Organisation.—The organisation has got to conform now to statutory provisions. And yet both its powers and the structure are so flexible that neither the growth of the organisation nor the sphere of activities are inhibited. The existence of the Advisory Board is extremely valuable. The parallel existence of recognised and registered institutions with their traditions and flexibility, their being composite units running agencies at lower levels right down to the village is another great factor providing scope for growth. The Intensive Area Scheme, and the provision for encouraging and bringing within its scope and utilizing Khetra Samities as voluntary organisations registerable under the Charitable Institutions Act, along with the system of Yojna Committees and Gram Vikas Mandals create unlimited scope for new activities and micro-planning. Similarly, organisations

may be set up under the Friendly Societies Act. Subject to satisfying certain minimum conditions about the sphere and method of work, new bodies as well as additional agencies may be fitted into the organisation. The organisation also makes use of the co-operative system within its frame-work for unit organisation.

- 25. Flexibility of the list of village industries and organised activities.—These two are very important merits of the organisation. The Khadi and Village Industries Commission Act of 1956 listed 12 industries to be under its purview. But the Act also provides for the inclusion of new ones by the Central Government on its own motion or on a recommendation from the Commission. Moreover, the scope for creating subsidiary bodies opens out fields for many other kinds of activities on which we have laid emphasis.
- 26. Work in the field of micro-planning by the Intensive Area Scheme.—By the very nature of the work to be done, a local agency of the Sangh is led into micro-planning or should be led into it. With regard to all the activities in the Khadi or one or more of the sponsored industries, the original emphasis was on family or local self-sufficiency and on the utilisation of local raw materials. But there has been no rigidity about it, and production of commodities for the near and distant markets are not ruled out. The scheme of Ambar Charkha, of the cottage match industry, the utilisation of dead animals, the encouragement of any local talents, skill and design and introduction of some completely new activities have all led to the linking of the village economy with the national economy. The State Board has helped this development by the provision of financial assistance and by marketing organisations.

But the fact that the scale of work is small enables the agencies to go right down to the families or individuals as the working units and thus to take up microplanning.

Within the standard list of the work of Khadi and Village Industries itself there are provisions which lead the workers to look into the problem of unemployment in detail in the village. In this way, there is provision for a standing offer of work in Khadi spinning for whoever wants to take it up at a modest rate of 6 naye paise per hour in the Intensive Area Scheme. This measure is just like the one we have recommended for adoption on a larger scale for mass or relief employment. Such schemes which are already on the list like the use of non-edible oil for soap, of picking oil-bearing seeds, of collecting fibres and other cellulose materials, gathering of tanning materials and numerous other activities would give rise to what we have classed as relief and marginal self-employment. The Intensive Area Scheme has necessarily led to the development of total survey and detailed planning for the employment of the entire work force within the available resuorces. We have looked into the survey, study and scheme of this type for village Deora in the Gaya district which was completed in 1958. It is a good and comprehensive model of case study and micro-planning embracing every aspect of the resources, human and material, and a complete planning for land improvement, reclamation, agriculture, fishery, afforestation or forest planting, forest products utilisation, animal husbandry, industries, social services, social security including employment, etc. The plan report observes very appropriately that the plan is in keeping with modern technique of development which organisation for finance. Emphasis is laid on organisation consisting in the mobilisation of all idle resources in men and material as well as finance (The Deora Village Plan, Page 80).

27. Conclusions and recommendations on the work of the Khadi and Village Industries Board and the Sangh.—Although these organisations are just on the fringe of microplanning, it is to be noted that no other organisation is thinking on these comprehensive

lines. The Department of Agriculture has got its scheme for village planning to be executed through the Community Development Projects, but it is naturally limited in its scope.

We are specially impressed by the inclusion of the guarantee of employment for the marginal persons not automatically absorbed by the process of development. We believe that a vigorous execution of the plan in any village would firstly, set into operation the self-acting forces of the economy in the village and would secondly, serve as a model for the adjoining villages.

We appreciate the long-run value of the Intensive Area Scheme with regard to the building up of attitude and the training of organisers. The technical training imparted in manual skill as well as in associative and organisational work would engrain a new attitude more effectively and durably than mere publicity activity because the new way of looking at work and life would grow into routine habit and arise out of the concrete results of more employment and income. We hope that in time the workers from the intensive areas would provide leadership for the neighbouring villages.

The Intensive Area Scheme studies bring out the large volume of preparatory and overheadwork which neither (1) the State agencies nor, (2) the individual village families can do. The Khadi and Village Industries Board and the Sangh really fill a great Kvacuum.

Our knowledge and experience of the growth of organisational work for social activities in the State, however, points to the need of one caution. While we are aware that the work of organising the Intensive Area Schemes should grow rapidly and that the activity itself should absorb a large number of educated youngmen, we are anxious that the sound tradition of unobtrusive and efficient service of these organisations with an ideological motivation is not diluted by too much of career-minded attitude which a rapid expansion may tend to introduce among the workers. For this as well as for other reasons, it would be desirable to provide the cadre of organisers and technicians and rely for local publicity effects on the concrete achievements and on the enthusiasm of the local unpaid workers.

We have mentioned about the work of micro-planning for marginal employment and self-employment in the urban areas as suitable for these organisations working under the supervision of the State Khadi Board. In addition, we draw the attention of those taking up the Intensive Area Schemes to the decay of agriculture and land use around the mining and industrial areas. Normally the industrial areas with their high spending power should have stimulated agriculture, animal husbandry and horticultural activities in the surrounding villages. But the lack of enterprise and response has produced very abnormal retrograde results. Here, therefore, are fields in which, if organisers are available, very tangible and spectacular results may be expected since the industrial and mining areas already provide good markets for the products of intensive land utilisation. There may be the difficulty that the workers from these villages have become so much satisfied with the cash income which they have begun to earn that they do not want to exert more. However, the percentage of those not absorbed in the industries might be sufficient for being activised for more intensive farming. The fact of the decline of agriculture in the outlying villages is there. The reasons we have just been guessing about. A spot study and survey of a few samples may reveal these reasons in greater detail.

28. Voluntary associations, basic schools, colleges and universities.—The volume of work awaiting to be done for (a) micro-planning and (b) collecting data on specific features is so vast that all available agencies should be tapped for the purpose. The "adoption" of a village by the Rotary Club of Patna is an example of the voluntary activities of an association. The Basic Training College at Turki made very comprehen-

sive studies of some of the neighbouring villages and even organised certain unemployment relief measures. The colleges and higher training schools of the State can well afford to set up small business-like units of teachers as permanent organisations which can do intensive survey and micro-planning even though they may not be able to execute the plans. But the data collected would be useful and the work itself would provide very valuable training in practical economics and insight into certain important features of public administration. The scope for making use of voluntary registered bodies under the Charitable Institutions or Friendly Societies Act have already been referred to.

Reference to certain statistical and analytical surveys and studies not directly producing micro-plans but providing valuable tools for micro-planning by Universities may be made here. We have made numerous references in this report to gaps in our knowledge and in the tools in our workshop of social engineering. It may be recalled that the chemical industries poincered by Germany were created out of the results of the researches in the Universities at very little cost to the state. The cost of social and statistical survey in India has been going up so much that it has attracted quite a lot of criticism. Much of it was necessary in view of the paucity of information and the necessity of reliable data for planning. But it is now time that the Universities take up some of these burdens, thus providing some relief to the Government as well as initiating students and teachers into the practical aspects of social and economic life.

CHAPTER V.

An outline of the Employment Aspects of the Economy of Bihar.

- 1. The overall features of the economy in relation to employment—the strains of growth and transition along with the difficulties of an underdevelope' economy.—The outstanding feature of the economy of Bihar a decade or so ago was that it was a stagnant and underdeveloped one because the normal progress of the Indian economy had been arrested two centuries ago as compared to the growth which took place in the West. A slow and unco-ordinated growth had begun from the middle of the last century to which some momentum was added after 1914. But conscious and planned efforts for co-ordinated development were initiated only during the last ten years after the Independence. The present position, therefore, is that this stangaant pool of our economy has now started to move. The result is that the major part of the economy is still underdeveloped and there is a vast mass of unemployment and underemployment due to the basic causes of lack of capital resources and appliances and the consequent deficiency in income and in aggregate demand for producer and consumer goods, the meagre margin for saving and the vicious circle that all these factors create. There is also a marked deficiency in the supply of enterprise in our State. Thus there is a large inactive labour force which never got into the field of employment. But since we have already initiated economic growth, we are in the early stages of a progressive economy and it is being subjected to the usual strains and stresses of a transitional economy which we have already examined. We may now look into the employment aspects of these triple features of backwardness, transition and growth.
- 2. The growth of population at an increasing rate racing aganist the growth of the **economy.**—We have seen that in the transitional phases of an economy, the rapid fall in death-rate without any corresponding fall in birth-rate leads to a rapid increase in population with an adverse influence on the percentage in the employable agegroup along with an increasing addition to the employable labour force. This growth of the population which was a little over 1 per cent in the preceding decades has been calculated to be growing at the rate of 1.8 per c nt er annum now. Our rural survey of sampled villages has brought out an annual increase even exceeding 3 per c nt per annum in some of them. Now, the Census of 1951 gave us details from which we infer that there were already 32 lakh people unemployed. Moreover, there were about 60 lakh employable people, in addition to them, not as yet in the labour market. A good percentage of this voluntarily unemployed number might have been coming into the labour market since the as a result of education, urbanisation and growth of job consciousness. In addition to this backlog, there would be the annual addition to the labour force. Against all these figures, it has been calculated that the First Five-Year Plan did not add appreciably to the number of jobs. The Second Plan, too, is expected to create only 8 lakh jobs by 1961. All these calculations bring out the growing dead weight of unemployment on the economy on account of the rapid growth of population.
- 3. The load of dependants and of the inactive or unemployed population.—Even according to the Consus of 1951 when the total population was 402.26 lakh and the annual rate of the growth of population had been little over 1 per cent the percentage of population in the age-group below 15 was 38.1 and that of persons who were 60 or above was 7.2. Thus 45.3 per cent of the population was in the dependent age group. Allowing for those engaged in domestic work, students, and so on, 40 per cent of the population is considered to constitute the labour force. But we find that net

only the load of the dependent population on the economically active section is very high, but even the 40 per cent of the population equal to 160.9 lakh were not gainfully occupied. The Census returned only 127.1 lakh out of them as economically active, leaving 34 lakh as not active and thus adding to the load of the dependents. We find that 13.35 lakh were returned as earning dependents. But they mostly belong to the non-earning or dependent age-group. Thus there was a load of 34 lakh adults who were neither engaged in domestic work nor employed. To these figures we have to add the figure of the redundant labour force on land.

- 4. The ruralised and undiversified economy of Bihar.—We find that, with the exception of Orissa and Assam, Bihar is the most ruralised of the major States of India. The proportion of rural to urban population is 14 to 1 in Bihar as against 24 to 1 in Orissa and 21 to 1 in Assam. But in Bihar, the proportion of agricultural population to the non-agricultural population is 6 to 1 as against only 4 to 1 of Orissa and 3 to 1 of Assam. Thus our economy is not only highly ruralised, but it is also very undiversified. Moreover, this feature has got to be considered in the background of the fact that the cultivable land per head of the farm population in Assam is at least six times that of Bihar. The position of Orissa, too, is better than that of Bihar in this respect.
- 5. The ratio of land to labour in the agricultural sector in Bihar.—Bihar, according to the Census of 1951 had a population of 492.26 lakh living in a territory with a gross area of 70, 330 square miles or 45,01 million acres which was reduced to 67,164 square miles or 42.98 million acres. Of this, only 26.5 million acres is under cultivation (including current fallow) with another paltry 3 million acres of marginal land which may be made cultivable. This gives us an average of 0.64 acres of land per head of the population engaged in agriculture. In the densely populated area it is as low as 0.3 of an acre per head of the farm population. Even this average of the ratio of land to the farm population has gone further down as a result of the transfer to West Bengal of 759 square miles of Purnea and 2,407 square miles of Manbhum districts. (Now, while the transfer of the estimated population of 14.42 lakh has already been made good by the natural increase, the reduction of the total area of the State is permanent.) The importance of this ratio of land to the working population from the point of view of employment is clear. It is the area of land which means the demand for labour and determines the marginal productivity of each unit of labour even apart from the general question of the supply of food and agricultural raw materials.
- 6. Regional diversity in natural and economic conditions.—In view of the fact that it would take a long time to integrate and modernise the entire economy of the country, the Committee has paid special attention to the specific problems of employment and unemployment in different regions. These differences in the regional problems are very clear en account of the wide differences in the geographical, demographic and economic features of the different regions. The plain regions of the Ganga Valley are rich in agricultural resources, but very densely populated and industrially backward. It is difficult to see how far agriculture-based industries alone can solve the problem of unemployment in them. Special efforts would be necessary to secure a greater inter-regional balance in growth and employment. The plateau regions are rich in mineral resources and the development of heavy industries is favourable not only for fostering ancillary, derived and feeder industries, but also for accelerated growth of employment in intensive farming and commerce.
- 7. The redundant population on land.—Even if we confine ourselves to the 127.07 lakh of gainfully occupied population in 1951, we find that 91 per cent of those living in rural areas and even 25.2 per cent of those living in the areas classed as urban derived their livelihood from land as self-employed cultivators or as labourers along

- with a small number of non-cultivating rent-receivers. This gives us an aggregate of 86.9 per cent of the working population hanging on to land, whether there is sufficient work for them or not. An effort has been made to estimate the number of this redundant population. This redundancy of the working population on land brings out the urgency of diverting as much of this population to other activities as possible. The other immediate remedy and relief would consist of making agriculture more intensive and devising means for increasing the density of the cropping scheme and of agricultural operations. It is possible that the two processes of a diversification of the entire economy resulting in a shift of population from agricultural to non-agricultural occupations as well as the reorganisation of agriculture on more intensive lines may go together as mutually sustained and reciprocally balanced complementary processes. We have also considered this redundancy in relation to the measures for mass employment, relief employment, self-employment and emigration to other states.
- 8. The problem of seasonal unemployment and under-employment in the rural sector.— Along with this feature of a large redundant farm population, we have got the problem of seasonal unemployment and under-employment which would be there even if the farm population were of the normal strength according to the existing farming practice. The Committee has sought to measure the extent of this under-employment and has come to certain important conclusions on the basis of the data so far available from the Sample Rural Survey which was undertaken by the Committee. A very wide diversity in the conditions determining the level of employment in agriculture in the different parts of the State has been found. This feature calls for specific measures suited to each area with its special conditions.
- 9. The self-employed tenant farmer and the landless labourer.—We find that 7.75 percent of the entire gainfully occupied population numbering 9.85 lakh consisted of the cultivators of land mainly unowned. The Committee considers it to be a very important intermediate category which provides a social and economic ladder for the large agricultural wage earning class numbering 28.63 lakh men and women. The Committee has examined their position and is making certain recommendations.
- 10. Predominance of self-employment.—Another outstanding feature of our economy which has got to condition the employment policy and measures in Bihar is the fact that both in the agricultural as well as in the non-agricultural sector of the economy, the vast majority of the people are self-employed. Thus in the agricultural sector the owner cultivators and the tenant cultivators constituting 56.02 per-7.75 per cent respectively, or 63.77 per cent of the entire gainfully occupied population are self-employed. Even the agricultural labourers constitute an intermediate category as their's is not a contract of labour but only a contract for labour, as a lawyer might put it. And even out of the 16.16 lakh of persons in nonagricultural occupations over 7.57 lakh consists of self-employed or independent workers who are neither employers nor employees. It is remarkable that the number of employers or wage-earners, even when any person who is employing a single wage-earner is given the status of an employer, is only 72,703 (including 13,693 women). The number of all categories of employees including those in the administrative activities and in domestic service was less than 8 lakh. Only about one-half or less of this number consisted of industrial workers.
- 11. Small number of the employed population in the non-agricultural sector.—The other outstanding feature of the economy, as would be inferred from the preceding paragraphs, is the small number of gainfully occupied people in the non-agricultural sector. Out of the 127.07 lakh people gainfully occupied, only 16.16 lakh were in the non-agricultural occupations constituting about 13 per cent of all the gainfully occupied people. Even out of this total number, the actual number of those people whose work might generate further employment was limited.

- 12. Lack of employment generating industrial superstructure .—The Committee has found itself in a position to be rather cautious when rosy pictures of the economy and optimistic conclusions are sought to be drawn from the data on the mineral resources and heavy industries. It may foster a sense of economic narcissism when we read that we produce 100 per cent of the copper ore, 87 per cent of Kyanite, 60 per cent of mica, 54 per cent of coal, 48 per cent of iron ore, about 48 per cent of china-clay, over 46 per cent of asbestos, over 30 per cent of bauxite, over 27 per cent of fireclay and so on, of the total production of India. We are likely to feel complascent at the knowledge of the largest steel plant of Asia being situated in Bihar. We are also the largest cement manufacturers in India. The Committee, however, has examined in the proper place the meagre volume of employment they create and has come to the conclusion that merely strong bases for industrialisation are not sufficient unless these bases are utilised for an appropriate superstructure of the economy. The Committee has tried to show how there are deficiencies and gaps in the higher strata of the structure above the base which accounts for the absence of the multiplier affects of these strong bases in the sphere of employment.
- 13. The strains of an economy in transition.—On the top of the problems of a backward or under-developed economy with regard to employment, we shall have to face other problems created by an economy in transition. It is important to note that some of these frictional problems created by growth and transition are self-liquidating. But many of them require special measures for reducing the immediate hardships as well as for bringing about the durable adjustments on sounder lines. The Committee, has, therefore, sought to go into these problems and has made appropriate recommendations for necessary measures or for further investigations. One of these recommendations is for a continuous study of the dynamics of the structure of consumption at different levels of individual income in order to adjust the structural balance in production to the structure of demand. Again, a transitional economy necessarily creates frictional unemployment which will have to be faced and coped with.
- 14. The trend of the shift from the available labour force to the labour market force.—The Committee has examined the trend of urbanisation during the recent decades and of the increasing number of persons presenting themselves on the labour market seeking jobs. Prima faci, it is a desirable feature that the volume of voluntary unemployment or idleness is on the wane. But it raises the difficult problem of finding employment for an increasing number of people.
- 15. The trend of urbanisation.—The Committee has noted the remarkable coincidence of the growth of population since 1921 with the accelerated growth of urbanisation. This feature has been examined from various points of view. It is felt that this trend may be put to good use in not only relieving pressure on land but also for providing more intensive land use around the growing urban areas. It is considered necessary to repeat the urban unemployment survey conducted by the Directorate of Economics and Statistics with a view to get a picture of the occupational patterns in the sub-urban areas as well. It appears that, so far, the towns in general, except a few like Katihar, Jamshedpur and so on, have been growing mainly for administrative and commercial reasons. So the occupations provided in them are rather employment absorbing than employment generating. It is felt that a guidance of the rur-urban economy would provide more effective means to relieve the pressure of population in the densely populated regions than any attempts to transfer population to other districts of the State.
- 16. The growing number of the educated unemployed.—The problem referred to in the last paragraph is made still more difficult by the expansion of education and an increasing number of young persons seeking jobs of the class which are not available to the extent of the demand for them. This is clearly reflected by the mounting

figures of educated job-seekers on the live registers of the Employment Exchanges working in this State as also by the increasing number of pupils or alumni passing out of the increasing number of Secondary schools and colleges. The problem is so urgent and important that a separate sub-committee has examined it and the subject has been considered in detail in a separate chapter.

17. The problem of gainful employment of women.—This is a mixed problem created by the factors which have been reducing the scope for much of the work in the homes in the rural areas by the expansion of education among women, by a growing number of entire families migrating to the towns and by an increasing number of women seeking paid jobs. The Committee has tried to examine all these feature along with the existing feature that a much smaller percentage of women are gainfully occupied in the urban areas than in the rural areas.

18. The role of emigration in relation to employment. The attention of the Committee has been drawn to a rather neglected feature of the economy of Bihar relating to the number of the temporary emigrants from the State. It plays an important part in our economy in view of the low ratio of land to the working population and also of the flaws in the structur of the non-agricultural sector as well as in view of the rapid growth of population. We find that at the time of the Canada the number of emigrants from Bihar to Assam, West Bengal and Uttar Pradesh was as high as 15.73 lakh, a figure almost equal to the entire working population in mining, quarrying, industry, commerce and services j. 2, in the entire non-agricultural sector and accounts for a large relief to our hard pressed economy. The Committee has reasons to believe, as will be explained when the details are examined, that the actual number of persons gainfully occupited outside the State boundaries is likely to have been much higher. Moreover, there is evidence to show that much of this population is genuinely in active work as against the number within the State which was given the status of being self-supporting. No doubt, a certain fraction of this emigrant population consists of dependents as well, but it is a sufficiently imposing figure to deserve the consideration of the Government.

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CHAPTER VI.

Population projection and measurement of unemployment and of employment potentials in Bihar: Matching of the Labour Force and Employment.

- 1. The complexity of the task of the Committee in establishing the causes of unemployment and of measuring them and their consequences.—At the very commencement of its work the Committee realized that the unemployment problem was far than commitx in our country than in the highly industrialised countries. In the West, rememblyment is normally a evelical and passing feature caused by one or two factors like the temporary deficiency of consumer or investment demand or an imbalance developed in the economy in the process of growth, on all of which accurate statistics are available. Then in the industrially advanced countries, the statistical data are ample and reliable. But, in our ewn country, all such data were absent when the Committee commenced its work and in apile of considerable progress made since then, there are still wide gaps in our knowledge. Firstly, we know that our economy is not completely monetised and most of our production, consumption and employment is or tible the integrated and measurable economy. Secondly, even in the monetised sector of the economy, most of the 127.07 lakh of the earners are self-employed. Hence, apart from the data supplied by the Census, not much could be ascertained and morning about their economic condition except within the organised industrial sector without specific investigations and surveys. Finally, as our economy is not integrated and homogeneous, there is a wide variety of causes operating in each specific field which are superimposed upon the basic causes common to all backward economies. Hence, the practical requirements and importance of sectional and specific measures force us into a wide variety of investigations in the employment conditions in the different spheres. Just by way of illustration it may be noted how there conditions differ in the rural from the urban areas, in the agricultural sector from the nonagricultural scetor, among the owner cultivators from the tenant cultivators, among both from the causes affecting the landless rural labourers, among women separately in the rural and the urban areas from those affecting men, and so on. There are also wide local differences in the conditions of employment. We know how the attention of the Government as also of the public was first drawn to the specific question of unemployment among the educated youngmen and among the middle class people. We also see how the special problem of under-employment, cutting across all these categories noted above, have been attracting attention in recent years. Nor must we forget the large velome of what may be regarded as voluntary unemployment. And it may be noted that all these are the problems now confronting us in addition to those relating to labour in the organised industries. It may be recalled how one of the causes leading to the appointment of this Committee was the large unemployment in the typical industries of Biliar like mica, shellac, bidi and a number of food processing enterprises.
- 2. The necessity of a simple methodology of investigations.—When unemployment and under-employment are looked upon as social and economic maladies, they call for observation, collection of data, their tabulation and presentation as a diagnotic process. Evidently, this diagnotic process must aim at data collection and analysis with the objectives of sifting, tracing and presenting each of the causes separately and of showing how they reinforce or counteract one another, which ones are likely to be self-terminating as a result of the growth of the economy and which ones may be cumulative. These details are necessary for the purpose of formulating policies and prescriptions. For these reasons, the forms or schedules and the headings under which data are collected have got to subserve to these ends. Moreover, when policies are formulated and measures have been prescribed, the evaluation or appraisal of their

effects is necessary like the assessment of the curative and remedial processes. Hence the forms and schedules have got to be standardised for being comparable over both time and space. For the purpose of these investigations, the Committee had broadly adopted the categories of the Census classification of the occupational tables. But it was felt that they were not quite adequate for the purposes in hand. It was considered necessary to elaborate them for the purposes of the surveys undertaken by the Committee. Meanwhile the Central Statistical Organisation had been directed by the National Development Council in November 1954 to standardise the methodology of employment and unemployment surveys so as to make the data and analysis of the different states comparable. The Central Statistical Organisation in consultation with the other statistical organisations and the states formulated a standardised methodology which was published in its 'Manual on Statistics of Labour, Employment and Unemployment' in 1955. The methods and categories laid down are flexible enough to allow any new categories to be included and existing categories to be sub-divided within its overall framework. Hence the Committee has not considered it necessary now to proceed with the working out of a new methodology. But the Committee thinks that the methods of investigation should be fairly simple so as to enable even an average honorary worker or any person from the village level administrative staff to understand and fill in the schedules with the same ease as the decennial census forms are handled by them. They should also be so easily manageable that apart from the initial handling they can be easily tabulated, presented, interpreted and used for operational guidance. It is believed that much of the work for increasing employment will have to be done at the village level reaching down to individual families. Hence methods of investigations have got to be suitable for being applied at these levels as well.

- 3. Terms and concepts: The concepts of employable labour force and labour market force.—An important conclusion arrived at by the Committee at the very beginning of the enquiry is that there is a large mass of unutilised labour force in the rural areas which is either voluntarily unemployed or is at least not job conscious. This led us to the concept of an employable labour force larger than the labour market force. This concept is now formulated in the Manual which distinguishes the labour force from the labour market force. The labour force means the entire volume of available labour whether it is seeking employment in the labour market or is outside the labour market by being voluntarily unemployed. The concept of gainful work is what has been in use from before. It means paid work as well as work in selfemployment that is all work for gain. So domestic work done by the family members is not included, but work done in family occupations is included in the category. The se included in this labour force are distinguished from those 'outside the labour force' and the latter are also further categorised. The labour force is then categorised according to activities bringing out the classes "employed" and "not employed" and in other intermediate categories. This classification also brings out the intensity of employment and extent of under-employment by means of the reference period of a survey. Labour force is further classified by status as to whether the workers are (1) employees, (2) apprentices, (3) employers, (4) workers on their own account, that is, self-employed or (5) unpaid family enterprise workers. Thus, purely domestic work is ruled out. It may be noted that the second and the fifth categories are not so classed in the Census table, but might have been included in certain cases in the Census category of earning dependents. The class "outside the labour force" is categorised along the lines adopted in the Census but is put in a more definitely demarcated group.
- 4. Sources of Statistics of Employment, Unemployment, Under-Employment and Fluctuations in Employment.
- 4.1. Growth in the sources of information in this decade.—When the Committee commenced its work of investigations with its limited resources it had to embark on

- a number of explorations in new fields as shown by the tasks assigned to some of the sub-committees. It had some materials already available in shape of publications of the Central and the state Governments. These materials, however, have become more ample since then and are still becoming richer and more systematised. We may refer to the more easily accessible of these sources from which we are seeking to draw materials to fill in the gaps in our own data or to check the latter with a view to word out a satisfactory picture of the task assigned to us. It may be mentioned here that in certain cases figures for our State are not available separately but there are all-India statistical tables or quantitative information which we may have to make use of. In such cases we have followed the usual formula of considering one-ninth of such quantity or number as applicable to Bihar on the basis of the ratio of our population to the population of India. This formula, however, has got to be modified where the parameter itself deviates from this proportion. For example, while the total population of Bihar was 402 lakh out of 3,569 lakh its urban population was only 27 lakh out of the all-India total of 619 lakh. Therefore, we can hardly consider one-ninth of the figure of urban unemployment of India as applicable to Bihar.
- 4.2. Principal published sources of information on employment and work force.—The following are the principal and easily accessible sources of data on employment:—
 - (i) Bihar Unemployment Committee Report of 1935-36.
 - (ii) Census of India. 1951, Vol. I, Parts I and II.
 - (iii) The Census of India, 1951, Volume V, Part II-B—Tables: Economic Tables of Eihar.
 - (iv) The Bengal Famine Commission Report, Final, 1945 Part II, Chapter I.
 - (v) Demographic Year Book of the U.N.O.
 - (vi) Statistical Abstract of India (Annual).
 - (vii) Bihar Statistical Hand-Book.
 - (viii) Estimates of National Income published by the Central Statistical Organisation.
 - (ix) The Agricultural Labour Enquiry (1951).
 - (x) National Sample Surveys.
 - (xi) State Surveys Complementary to the N.S. S.
 - (xii) The First Five-Year Plan Report of India (specially Chapters I and XXXIX).
 - (xiii) Two-Year Plan of Bihar.
 - (xiv) First Five-Year Plan of Bihar.
 - (xv) The Second Five-Year Plan (specially Chapters I and V) of India
 - (xvi) Papers relating to the formulation of the Second Five-Year Plan (specially Chapter IV).

- (xvii) The Second Five-Year Plan of Bihar.
- (verific) The Annual Reports of the Developmental Departments of Bihar.
 - (xix) The Annual Reports under the Mines, Fastories and Labour Acts.
 - (xx) The Census of Indian Manufactures (Annual since 1946).
 - (xxi) The Annual Report of the Directorate of the National Employment Service.
- (xxii) The Indian Labour Gazette.
- (xxiii) Annual Consus of the employees of the Government of Bihar every year as standing on the 1st of June since 1952 by the Central Bureau of Economics and Statistics of Bihar.
- (xxiv) The Quarterly Report of the Employment Market Information Programme (available since the middle of 1958).
- 5. ASSESSMENT OF THE UTILITY AND SHORTCOMINGS OF THE ALL-INDIA SOURCES.
- 5.1. The N.S.S. and other reports and statistics.—Much of the literature emanating from the Planning Commission and i.s subsidiary bodies not only have necessarily got to give ample statistics but also contain valuable tools of analysis which are ever being added to and improved. What, however, we feel is that it would be of very great help for administrators, but incessmen and others if the state break-down of figures were available to a greater extent.

In the investigations of the N.S.S., the figures in mely cases were available for regions or over our were not applicable statewise. The system adopted by the Census of 1951 of having the regions, sub-regions, zones and sub-zones within state boundaries makes it possible to obtain or work out a vive figures. Unless the data on samples collected by the N.S.S. within the areas of the states are also available statewise to the State Bureaux of Economies and Statistics which are asked to conduct similar supplementary surveys on their own account, the all-India averages lose much of their value for the purposes of the states.

- 5.2. The Census of Indian Manufactures.—The annual Census of Indian Manufactures under the Industrial Statistics Act of 1942 of the Centre, now substituted by the Collection of Statistics Act of 1953 in force from 1956, is available from the year 1946. The Centre is responsible for the collection of statistics for the industries scheduled under the Industries (Development and Regulation) Act of 1951. All of the 62 i district scheduled for Census have not been covered as yet. Another limitation is that only such establishments as use power and employ 20 workers or more have been covered. However, figures are available separately for Ether except in cases when the number of factories in the State is less than three.
- 5.3. The returns under the Mines and the Factories Acts.—We have noted in greater detail the gap left in the returns under the Mines and the Factories Acts which give us the figures of employment only in the premises whereas we are interested in the figures of employment in each enterprise, whether the employees are working in the premises or elsewhere. For example, the large number of workers operating and maintaining the transmission lines of the electrical enterprises are not accounted for in the returns of the factories under the Factories Act.
- 5.4. The figures of the Employment Exchange registers.—The great merit of the figures given by the Employment Exchanges is that the records have become more

elaborate and informative. They show the age, educational and vocational qualification, technical category and industrial origin of the applicants. The occupational categories are now fairly elaborate. The registers enter and calculate the first entrants into the labour market separately from the persons thrown out of employment. A regular and periodical analysis of the information can give us indicators showing the increase in the size of the labour market separately for each category as also indicate the shifts in the trends of employment. The growth in the size of the labour market may be examined along with the estimated growth of population. The figures of the placements may indicate the trend of employment occupationwise and bring out occupational shortages and surpluses.

6. THE CENSUS TABLES.

- 6.1. The livelihood pattern or occupational classification of the Census of 1951.—In view of the fact that the Census tables alone provide a comprehensive picture of employment so far, we have to start with an examination of figures given in them. We find that at the tabulation level, the population for each unit was classified broadly into male and female which runs through all further classifications of the population. The area units are separated into rural and urban, the population in each being again divided into agricultural and non-agricultural. The definition of rural and urban area has differed in certain cases from state to state, but the chances of any errors about inferences of economic significance are minimised on account of the detailed occupational tables for each. Thus the agricultural and non-agricultural population is shown for both the rural and the urban areas separately. As already noted, the sex categories run through all these and through further classifications. The agricultural and the non-agricultural classes are tabulated according to the economic status as earning or self-supporting members, earning dependents and non-earning dependents. The agricultural class is further sub-divided into four livelihood classes of (1) cultivators of wholly or mainly owned land, (2) cultivators of wholly or mainly un-owned land, (3) cultivating labourers and (4) non-cultivating owners of land, and other agricultural rent receivers. The non-agricultural population has been classified as engaged in (1) production (other than cultivation), (2) commerce, (3) transport and (4) other services and miscellaneous sources. Economically active non-agricultural population has further been split up into three categories of (i) employers, (ii) employees and (iii) independent workers. The non-agricultural livelihood classes engaged in mining, industries, commerce and services are tabulated in very elaborate categories of ten divisions and eighty-eight unevenly distributed subdivisions of these divisions. These classifications have been briefly indicated just to show what an investigator can find in the Census tables. All these details may be understood and mastered without any great efforts by an intelligent investigator before he takes up any local or specific survey. They would also show what kind of information is not available and may have to be collected by ad-hoc investigations.
- 6.2. The gaps in the Census classifications: The measurement of redundant labour force in agriculture.—We may now examine the deficiencies of the classifications of the Census tables. The first deficiency is that while the Census classification tells us about the number and percentage of the earning section, there is very little data from which to draw conclusions about the causes of the load of dependency on the working population. We calculate the age-groups on the basis of the results of the sample surveys of the Census itself for this purpose which were included in the Census operations. If we were to be guided only by these figures and to treat the entire earning or self-supporting population as really employed, we would be led to the conclusion that we have got a picture not far removed from that of full employment in the agricultural sector. But this enumeration of the working population is clearly misleading and the Census tables merely define the formal status of the persons.

Everybody who is familiar with the methods of the Census operations knows that all the members of a cultivating or artisan family of the working age-group would be returned as self-supporting or gainfully occupied even though there may not be sufficient work for the entire family. We know how the growth of population since the Census of 1921 has led to the fragmentation of holdings and increased the number of persons deriving subsistence from each holding. Now formally, any investigator is likely to return all the adults so connected with the holdings as gainfully occupied. But the fact is that in most cases a much smaller number of persons would be enough to work the farm at any level of technology of farming. It would not be difficult to estimate the actual number of persons and the mandays which would be sufficient to operate all the farms or holdings of a village according to the prevailing practices of nonmechanised farming. After making this estimate it would be easy to calculate the surplus population on land in the village under survey. Similarly, the excess number of persons and families engaged in house or family crafts may be ascertained easily by calculating the volume of work done in a year and the number which should normally be able to manage 11. The difference between the two would give us the measure of unemployment or of reductionery of labour force in this sector.

Another gap in off information relates to the dependents and the earning dependents. Evidently those engaged in domestic work have been classed as dependents. We can estimate the extent of dependency among adults only by comparing the figures of dependency with those of the persons above and below the employable age range. The Ninth Round of the N. S. S. has calculated those engaged in domestic work as a distinct category. Such enumeration may be difficult in a mass scale census operation.

7. THE EMPLOYMENT MARKET INFORMATION PROGRAMME.

- 7.1. Its comprehensiveness.—We note with satisfaction that, while the Committee was struggling to work out with its very meagre resources the picture of employment and unemployment in this State, the systematic efforts of the various organs of the Central Government with the technical assistance of the I.L.O. have worked out and put into operation a systematised scheme of Employment Market Information Programme through the state Governments. The Employment Market Information Programme is an ambitious scheme not only with regard to the elaborateness and richness of the details which are being collected but also in relation to the target of the coverage. In drawing up such an all embracing programme the Planning Commission and the Central Ministry of Labour and Employment have sought to follow closely the letter and the spirit of Recommendation No. 83 and Convention No. 88 of 1948 of the I. L. O. to cover all the sectors of an economy. The programme was inaugurated in Biliar in the second half of the year 1958. As in the other states, the work has been entrusted to the Directorate of the National Employment Service in Bihar and the work of collecting and compiling the Employment Market Reports have already been started to the extent of the resources available to the Directorate. Although the sectoral and geographical coverage is so far limited, the information collected within the coverage is quite comprehensive. In fact, it is so comprehensive that we are rather afraid that a quarterly submission of the returns by the reporting establishments in such elaborate forms may be regarded, by the private firms at least, as a new burden on the top of so many different forms on the same or nearly the same subject to different authorities under different Acts. We have made a recommendation for rationalising the forms of returns with the object of satisfying all the different Acts as well as the needs of the internal administration of the establishments with the minimum of labour.
- 7.2. The methods of the Programme.—The system which has been adopted is to demarcate areas and sectors constituting the specific employment markets and then

to collect quarterly the reports by the Establishment Reporting System from the public as well as the private sector and from the offices of the Government and semi-Government bodies.

The public sector includes the establishments of the Central and the State Governments covering both the State and the quasi-State organisations as well as the local bodies. The Railways and the Cantonment Boards have been treated as separate categories. In the private sector all the establishments employing 10 or more persons are being covered. But it is proposed to go even below this level. Thus the coverage is much wider both in breadth and depth than that of the Census of Indian Manufactures. We find that the first round of the enquiry has covered the entire public sector in the State for the third quarter of 1958. Moreover, the entire public sector embracing the Government and semi-Government establishments of both the Central and the State Governments as well as the local bodies has been accounted for. Thus the programme now extends beyond the narrow range of the annual enumeration of the State employees of the Government of Bihar by the Central Bureaue of Economics and Statistics of the State. In the second round of the investigation in the fourth quarter of 1953, the scheme was to cover the private sector in the districts of Dhanbad, Singhbhum and Patna. It was planned to extend the programme by such steps to cover the entire geographical area of the State.

The scheme then took up the construction of an Employers' Register of the returning units. This by itself when completed, phase by phase, would be a valuable record. Efforts have been made to go right down to such reporting units as will not have to call for and then complete the reports and returns but will be able to prepare and submit them from the information already in their establishments.

The forms of the returns have been so drawn up that they give a clear picture of the occupational distribution in the establishments. The figures of the employees under each occupational head is to be given as it stands at the beginning and at the end of the quarter. In this way the returns indicate the level as well as the trend of employment. In addition, each return is called upon to note the forecast of requirements in each category of the employees during the next twelve months. It is further proposed to collect special details of occupational patterns every two years. There is provision in the quarterly forms for submitting figures of shortages under each occupational head. Information on this subject would be very useful for vocational guidance and training programmes. From the very first round of the returns of the public sector, information of a shortage of 10,146 male and 1,007 female candidates for categories which were reported as not easy to fill has been collected.

The programme is also collecting returns of the outturn of all eategories of educated and trained persons in classified forms from all educational and training institutions. It is clear that this information along with the classified information in the registers of the Employment Exchanges would greatly facilitate matching and placement functions of the National Employment Service.

In the first round of the work, the entire public sector has been fully covered. As soon as the private sector is also covered similarly, the entire class of salary and wage-carners in the non-agricultural sphere of the economy would be regularly surveyed except for the margin of small enterprises employing less than ten persons. However, the programme authorities have been working out methods for further extending the depth of the coverage by bringing on the Establishment Registers units employing less than ten persons.

7.3. The gap in the Programme.—This painstaking and searching programme, while achieving so much in the more complex sectors of the economy, still leaves very wide

quantitative gaps. Even after many of the establishments employing less than 10 persons are covered, it may not be possible to cover all of them. The smallest ones are really self-employing establishments. Next, the large number of outright self-employing persons and families are not covered at all. Finally, the agricultural sector is not touched by the programme. The programme, however, is not prepared to leave these gaps uncovered and contemplates to fill them in by other methods. We are noting here these other methods along with our suggestions.

7.4. Other measures for extending the scope of the Programme.—It is proposed to •ollect data from the small establishments and enterprises not covered by the Acts relating to Mines, Factories and Labour from the authorities in charge of the administration of the Shops and Establishments Act as also from the licensing authorities about all enterprises requiring licenses (road transport, liquor shops and so on). We think that the State trading in foodgrains would bring in a large number of small commercial enterprises within such measures. It is also suggested, unless it is already in the scheme of the Directorate, that the Khadi and Gramodyog Sangh as well as similar other non-official organisations should be utilised for further data collection. Further, we suggest that it is now time that the Directorate should seek the co-operation of the Community Development Blocks for the collection of easily standardisable data from the rural and agricultural scetor even on sample basis or for type and ease studies not only for the sake of the data alone but also for making the Block Organisations more employment-minded and for a greater use of the method of micro-planning. The Department of Agriculture has already got a well thought-out programme of village planning, and it should not be difficult to prescribe some simple forms for returns on agricultural and non-agricultural employment in the rural areas. The Gram Panchayats will have to function as statistical agencies in the long run. The co-operative enterprises can also be brought within the sphere of the programme but the existing forms may have to be modified. We believe that the figures about employment in road transport by bullock-carts would be easily available from the licensing authorities in so far as the carts are used for hire and have got to be Heensed. We also think that measures for the improvements of inland water transportation would require a system of licensing the boats used commercially. Otherwise, occasional surveys of river traffic by country-boats may be conducted for more than one purpose. There is another very important category of employment which may be covered quite satisfactorily. This relates to labour in constructional work employed through contractors. It is hoped that the system of treating the contractors as subordinate reporting establishment and getting the returns through the public or private reporting establishments awarding the contracts should work quite successfully. Finally, it is suggested that sample surveys of small self-employed persons in commerce, in hand trade and in employment taken out on contract terms in homes in urban areas may be conducted. It would be possible also to work out formulae of the ratio of persons in the main occupations of this class to the population of the locality. By comparing these ratios of different localities at different levels of prosperity, it may even be possible to build up formulae to indicate the multiplier or employment generating value of different levels of income on most of the humble occupations classed as commerce which are so important for unemployment relief in the first phases of a developing economy. Not only in India, but in every backward economy, such humble enterprises in handicraft, contract home work, commerce and servicing provide very valuable socio-economic safety valves and economic relief. In a subsequent paragraph we have reproduced one such calculation of the ratio of some of these occupations to the population in general which was worked out by Mr. S. R. Bose from the data in the Census tables. Sample surveys by voluntary efforts of colleges, co-operatives, Khadi and Gramodyog Sangh are quite feasible.

7.5. The use of other data and ad-hoc surveys.—The programme seeks to fill in the remaining gaps by two other methods. One is of using the data collected by the

National Sample Survey in its various rounds and the data collected through investigations supplementing the National Sample Survey operations by the State Directorate of Economics and Statistics. It also proposes to utilise the data collected by other official and non-official bodies like the Universities, our own Rural Unemployment Survey, the Programme Evaluation Reports, and so on. Secondly, it is within the scheme of the Programme to conduct, now and then, its own ad-hoc surveys as required. The usefulness of case and type studies cannot also be over emphasised. All these methods of sample surveys, ad hoc investigations, case and type studies are valuable methods having their own special merits apart from providing the means for filling in gaps and providing cross-checks of the data collected in other ways.

- 7.6. Case and type studies.—In connection with such ad hec surveys, we point out the value of ease and type studies which have been found to be of considerable use and value for a number of reasons. The first reason is that where local and special conditions vary so enormously as in an under-developed economy, highly generalised statistical inductions are not always of great practical value. In all generalisations the minor attributes are averaged out. But they may be of great practical value in local micro-planning. Secondly, unless a statistical study is specially designed to plot a trend in time series, the statistical averages would give only a static picture. Thirdly, case and type studies seek to combine certain features of the use of both statistical and analytical tools where either of them alone may not be enough. Such a situation arises generally where a very large number of factors, and specially many minor and obscure factors, are believed to be operating.
- 7.7. Employment surveys and studies through the Bihar Khadi and Gramodyog Sangh.—In Chapter IV we have referred to the beginning made in the work of micro or intensive planning at the village level by means of the Intensive Area Scheme by the Khadi and Gramodyog Sangh. The work is proceeding very slowly but has got the merit of being accurate and thorough. This work of the Sangh is taken up with the practical objective of putting the plan into operation for utilising all the human and material resources and of even providing standing offers of marginal employment and relief employment. Such surveys, therefore, would necessarily be more objective and responsible than others.

तिराधिक अधन

8. The growth of population in relation to employment.—We now come to the central subject of this chapter of the present and prospective situation of employment in relation to the population and its growth. We have already seen that while the level of employment in a community depends on aggregate demand in the first instance, aggregate demand itself depends on employment and the level of productivity. These, in turn, depend on the supply of instruments of production in form of land and capital appliance. Hence employment is ultimately a question of the ratio of the capital or material resources used as appliances to aid labour in production (technology being assumed) and the volume of labour. Now, capital resources have got to be built up and husbanded by streamous efforts of hard work, saving and investment while the growth of population in most cases and with us is going on automatically in spite of our efforts to curb it. We have, therefore, to examine the trend of the growth of our population and its economic consequences. We have already examined the broad features of the employment aspects of the demographic trend in a backward and developing economy. We saw that in all communities, except in the economically and eulturally very highly advanced ones where deliberate birth control as well as other social factors limit marriages and births, the birth-rate tends to attain the highest level which is biologially possible. For this reason the decisive factor in the growth of population in a backward and transitional economy is the death-rate and the modifications in it brought about by economic changes and administrative advances. We may now see how this trend has been manifesting itself in Bihar and in India, during the last few decades.

9. The demographic trend in Bihar from 1891 to 1951.—The following table shows the actual growth of the population of the State of Bihar within its present area during the last four decades:—

TABLE 4.

	Year.		Population.	Percentage of decrease or increase in the preceding decade.
	1		2	3
1921	 	 	28,119,185	1.1
1931	 	 	31,339,050	+11.6
1941	 • •	 	35,171,879	+12.2
1951	 	 	33,783,778	+10.1

Taking this table into consideration along with the growth since 1891, we find that in the three decades between 1891 and 1921 the population of this State increased only by 3 per cent over the entire period. In the decade 1911--21, there was a positive decline of 1.1 per cent as a result of the great influence epidemic. We find that this State along with the rest of the country experienced the ravages of famines, plague and an unprecedented epidemic of influenza during this period of 1891-1921. Besides, there were the recurrent outbreaks of cholera, the ever present malaria and dysentary and other causes of high infant and adult mortality. But it was also during this period that a beginning was made of the modernisation of the economy as well as of the social and political structure. Railways opened up the country and agriculture was commercialised. Towns grew up and now avenues of employment were created. The supply of food improved. All these causes along with the successful measures for combating epidamies are reflected in the first big upward trend in the growth of population during 1921-31 when it rose by 11.6 per cent. Comparing the decades 1921—31 and 1941—51, we notice two very significant trends. The decennial birth-rate fell from 33.7 per cent to 25.7 per cent but the death rate fell even faster from 25.7 per cent to 13.1 per cent. In this connection the Tables below showing the yearwise birth and death-rates in Bihar from 1921 to 1956, and also showing the crude birth and death rates in India from 1920-24 to 1952 will be of interest. It would appear that whereas the maximum birth rate recorded during 1921-56 was 38.3 per thousand in 1928, it fell to 17.8 per thousand, that is, by more than 50 per cent in 1956. But similarly due to improved health measures and other factors, the death rate also full from the highest figure of 34.1 per thousand in 1922 to 8.7 per thousand in 1956, that is, by over 75 per cent. Thus the death rate has been falling faster than the birth-rate. Those interested in family planning may like to examine the causes which have led to the fall in the birth-rate and may further try to recommend measures to bring it to a level that may avert the present rapid rate of increase in the population. TABLE 5.

STATEMENT SHOWING THE BIRTH AND DEATH-RATES IN BIHAR.

(Source: Directorate of Economics and Statistics, Bihar.)

	Year.				Birth-rate per thousand.	Death-rate per thousand.	
				2		3	
1921		• •			34.6	32.8	
1922	••				35.0	34.1	

TABLE 5-coneld.

STATEMENT SHOWING THE BIRTH AND DEATH-RATES IN BIHAR.

(Source: Directorate of Economics and Statistics, Bihar.)

	Year.				Birth-rate per thousand.	Death-rate per thousand.
	1				2	3
1923					37.3	25.0
1924	• •	• •	• •		35.7	29.1
1935			••		35.6	23.7
1698	• •	• •			37.2	23.7
1027		• •			37.6	25.1
1928			• •		38.3	25.3
1929	• •		, .		35.6	26.9
1930	• •		••		36.2	29.6
1931	• •	••	. 5		3 3.9	26.6
1932	• •				33.8	20.6
1933	••	••			35.7	22.1
1934	••				N.A.	N.A.
, 19 3 5			(4)		34.6	24.3
1936			. 1/1/1		35 .3	21.7
1937	• •	••	م دار بادر منظور رادر	144.5	34.0	22.5
1938	••	••		\$2.75°	34.5	23.6
1939	• •	••			33.3	23.0
1940			1	व स्टान	31.1	22.2
1941					28.9	19.6
1942					24.5	15.7
1943					20.9	16.4
1944			• •		21.4	23.0
1945	• •				24.3	21.9
1946	••		••		23.6	18.7
1947					19.1	16.2
1948	• •				18.9	14.2
1949					19.1	10.9
1950	••		••		19.7	12.7
1951	••		• •		18.1	12.1
1952					18.8	9.9
195 3			••		19.3	10.2
1954					18. 4	10.2
1955			••		18.4	8.6
1956			••		17.8	8.7

N.A. Not available.

TABLE 6.

STATEMENT SHOWING CRUDE BIRTH AND DEATH-RATES IN INDIA.

(Source: U. N. O. Demographic Year Book.)

	Year				Crude birth-rate.	Crude death-rate
		1			2	3
1920-24	••	••	••	••	33 .0	26.8
192529	••	••	• •	810	33.5	24.3
1930—84	• •	••	••	A-0	34.0	23.7
1935—39	• •	••	••	b::0	33. 8	22.6
19 3 9	• •	• •	••	••	32.7	N.A.
1940	••	• •	***	-	32.0	N.A.
1941	• •	• •	Atte	-	32.1	N.A.
1942	••	• •		B700	29.5	N.A.
1943	•••	٠.		TE AND	26.1	N.A.
1944	••	9			25.8	N.A.
1945	••	•••			28.0	N.A.
1946	•.•	***	7		28.8	18.7
1947	era	63%			26.4	19.5
19 4 8	••	•			25.2	17.0
949	••	•10			26.4	15.3
1950	••	• •	h the	17.	24.9	16.1
951	••	••		• •	24.9	14.4
1952	••	••	• •		24.8	13.6

N.A.-Not available.

10. Method adopted for our calculations in order to get over the change in area and population of Bihar.—Before we present our measurements, an explanation of our procedure is necessary. We find that the population of Bihar by the 1951 Census was 402.25 lakh. After the transfer of certain tracts of Manbhum and Purnea, population in the present area would work out at 387.83 lakh in 1951. The Census classifications of livelihood and other statistics are given for the entire State on the basis of the original population and the published volumes of the Census Reports giving these tables do not go below the district figures. Hence the Committee has not found it possible to recalculate all the derived figures according to the base of the reduced total population of 387.83 lakh in 1951. As a way out, the Committee considers that no difficulties would be caused in drawing inferences if we treat the derived figures of livelihood tables and other from the figures of the total population of 402.25 lakh as if all these relate to the year 1953. By that year, the population even in the reduced area of the State had reached the original level of 1951.

11. Anticipated growth of our population in the present decade in Bihar.—On the basis of the rate of growth of the population in 1941—51 our calculation was that

the growth in the present decade would be from 1.01 to 1.09 per cent annually. But the latest estimates worked out by the Planning Commission during recent years show that the rate of growth is likely to be 1.8 per cent, or even 2 per cent per annum as a result of better sanitary conditions, increase in the available medical help, rise in the income of the poorest classes and various social welfare measures increasing the welfare of the masses. This spurt in the growth of population in the early stages of economic development is a normal demographic experience which makes all measures for planned and forced economic development a race between the growth of population and capital accumulation. It is felt that this trend of population would continue during quite a number of our succeeding five-year plans until a high standard of living and the consequential deliberate birth control by family planning and other social factors is achieved. We know that apart from deliberate birth control by married couples, the diversion of women to employment and economic independence also contributes to this check on births. The Committee finds that this subject has already been examined so elaborately by various authorities that no further examination is necessary and it will concern itself only with the calculation of the annual addition to the population and the available and the potential labour force of the State. Before we take up the estimates of the growth of the population we may also see how this growth may be shared between rural and urban areas.

12. Distribution of the growth of propulation between urban and rura areas.—It has been calculated that this growth of the total population would be distributed at a 4 per cent per annum increase in the urban and a little less than 2 per cent per annum in the rural areas in 1951—61. The growth of urbanisation in Iudia as a whole has been steadily growing and Bihar is not likely to fall below the average in this respect during the present decade in view of the growing industrialisation and commercialisation of the economy. Moreover, so far the trend of urbanisation in Bihar has been weaker than in most other states. The proportion of our urban to rural population in 1951 was only 1 to 14 as against 1 to 2 in Bombay, 1 to 3 in West Bengal, 1 to 4 in Madras and Punjab and so on. The general trend of urbanisation for the whole of India is brought out by the following table:—

TABLE 7.

	Census	year.		Rural.	Urban.	
· · · · · · · · · · · · · · · · · ·		1		£	3	
				Percentage.	Percentage	
1871	• •		 ••	91.3	8.7	
1881			 • •	90.6	9.4	
1891			 	90.5	9.5	
1901		• •	 	90.2	9.8	
1911			 	99.6	9.4	
1921			 	89.7	10.3	
1931			 	89.0	11.0	
1941			 	87.3	12.7	
1951			 	82.7	17.3	

We are not reproducing here the details of the growth of urban population in Bihar during the last 50 years as given in Vol. V, Part II-A of the Census of India, 1951. We may, however, note that the factors responsible for the growth of urban population are considered to be (1) the natural growth, (2) migration from rural to urban areas as a result of a large number of factors noted elsewhere, and (3) the transfer of fresh areas from rural to urban category when, as a result of the last two factors, the population of a small compact area exceeds 5,000.

13. The projection of the total population and of the working population.—Three tables are given below showing the growth in the employable or working population (15 years to 59 years) from year to year according to three different formulae or expectations of the rate of growth of the population. The first table is based on the estimate of the growth in the population on the basis of an annual increase in the total population at the rate of 1.01 per cent, which was the figure attained during the decennial period 1941—51; the second table is based on the estimate of the increase in the total population at the rate of 1.8 per cent, and the third table is based on an estimate of the growth of the population during 1951—61 at the rate of an annual increase of 2 per cent. In each case the employable population has been estimated at the rate of 40 per cent of the total population.

TABLE 8.

(Figures in lakh.)

	Year.			Total population of Bihar.	Increase during the year at 1.01 per cent.	Total emp.oyable population at 40 per cent of the total or of column 2.	Addition to the employable population during the year at 40 per cent of column 3.
			1	2	3	4	5
<u>-</u> -				A POST TO LANGE	3.		
19 51		• •		3,87.83	3.92	1,55.13	1.57
1952	• •	• •		3,91.75	3.96	1,56.70	1.58
1953			• •	3,95.71	4.00	1,58.28	1.60
1954	• •	• •		3,99.71	4.04	1.59.88	1.62
1955		• •		4,03.75	4.08	1.61.50	1.63
1956	• •	• •		4,07.83	4.12	1.63.13	1.65
1957		• •		4,11.95	4.16	1.64.78	1.66
1958	• •			4,16,11	4.20	1,66,44	1.68
959		• •		4,20.31	4.25	1,68.12	1.70
1960			• •	4,24.56	4.29	1,69.82	1.72
1961	• •	••	••	4,28.85		.,	

Thus, roughly about one lakh and a half persons, males and females, are added every year to the available labour force.

TABLE 9.

(Figures in lakh.)

	Year.				Total population of Bihar.	Increase during the year at 1.8 per cent.	Total mployable population at 40 per cent of the total or of column 2.	Addition to the employable population during the year at 40 per cent of column 3.
		1			2	3	4	5
1951	• •	••	••	••	3,87.83	6.98	1,55.13	2.79
1952					3,94.81	7.11	1,57.92	2.84
1953	• •		• •		4,01.92	7.23	1,60.77	2.89
1954	• •	• •	• •		4,09.15	7.38	1,63.66	2.94
1955	• •	• •	• •		4. 16.51	7.50	1,66.60	3.00
1956		• •	• •		4,24.01	7.63	1,69.60	3.05
1957	• •	• •	• •		4,31.64	7.77	1,72.66	3.11
19 58		• •	• •		4,39.41	7.91	1,75.76	3.16
1959		• •		• •	4 47.32	8.05	1.78.93	3.22
1960		• •	• •		4,55.37	8.20	1.82.15	3.28
1961		• •	••		4,63.57	• •	••	••

	Year				Total population of Bihar.	Increase during the year at 2 per cent.	Total employable population at 40 per cent of the total or of column 2.	Addition to the employable population during the year at 40 per cent of column 3.
		1			2	3	4	5
1951	••	••	••	• •	3,87.83	7.76	1,55.1 3	3.10
1952	,,,,,	••	••	••	3,95.59	7.91	1,58.24	3.16
1953	91.4	•.•		••	4,03.50	8.07	1,61.40	3.23
1954	e/d	• •	• •	••	4,11.57	8.23	1,64.63	3.29
1955	92B	010	• •	••	4,19.80	8.40	1,67.92	3.36
1956	• •	• •	• •	• •	4,28.20	8.56	1,71.28	3.42
1957	• •	••	• •		4,36.76	8.74	1,74.70	3.50
1958	• •	••	••	52	4,45.50	8.91	1,78.20	3.56
1959	••	• •	••	6	4,54.41	9.09	1,81.76	3.64
1960	••	••	• •	••	4,63.50	9.27	1,85.40	3.71
1961	• •	••		• •	4,72.77		••	• •

14. Tota population in relation to the population in the working age-group an te working popu ation.—The total population of a country does not give us an accurate picture of the labour force available for productive work in a country. Nor does the figure of the available labour force give us an idea of the number of productively or gainfully occupied. Hence we have to examine the pattern of livelihood groups in Bihar with the background of the total population and the available labour force in the picture in order to assess the percentage of the population which is economically active and employed. The next thing to note is that in a backward economy, there is an appreciable volume of what may be called voluntary unemployment. This arises out of the lack of job opportunities and because the awareness of and desire for employment has not as yet developed. The result is that quite a lot of men and women just continue to hang on to the limited sphere of self-employment as cultivators or artisans for which the labour of all of them is not at all necessary. This feature has been analysed in some detail concerning the agricultural sector later on in this chapter. Similarly, in a backward economy with its absence of employment opportunities before a money economy has replaced subsistence economy a large number of women are engaged in domestic work and they are not counted as gainfully occupied. Much of this voluntary unemployment tends to diminish as job consciousness grows and persons begin to look round for jobs. The situation of employment in our country is in this transitional period of the growth of job awareness along with the absence of job opportunities to the extent of the growing demand for gainful work. The growth of this individual and social attitude towards job, which is a very important facto for economic progress is absent in a primitive society. In our own country it has been growing very rapidly in recent years. We must not. however, forget the social dangers of this growth in the demand for work and livelihood if it is not satisfied by a continuous growth of the economy.

15. Estimate of the employable labour force of Bihar.—The total population of Bihar in the Census year 1951 was 402.26 lakh in an area of 70,330 square miles. In the year 1956, the area was reduced to 67,164 square miles by the transfer of parts of Purnea and Manbhum districts to West Bengal. But it is estimated that within this reduced area, the population had increased to the level of 1951 by the year 1953. To be exact, the population might have increased by 1953 from 387.83 lakh in the present area in 1951 to £95.72 lakh if the population was increasing at the rate of 1.01 per cent per annum or to 401.92 lakh if this rate was 1.8 per cent.

The sex composition of a population is of some importance from the employment point of view. But in view of the population being equally divided between the sexes (2,02.23 male and 2,00.02 female in the original number in 1951) we may ignore its consideration for the present.

The age composition of a population is of direct significance for employment calculation and we shall examine it now. It would be easy to see that in a population with high birth-rate, the number of young persons would be large unless other factors like a very high infant mortality intervene. Similarly, in a community with a low death-rate, the number of elderly dependents would be much larger. For example, the percentage of young persons and infants below 15 years of age, who are in a state of economic dependency, in our country is 38.1 as against 22.5 in the U.K. or 21.8 in France. On the other hand, the percentage of elderly persons above 55 is about 8.3 in India against 21.1 in the U.K., 21.4 in France but only 11.0 in Japan. The composition of the population of Bihar in this aspect in 1951 is given in the table below:—

TABLE 11.

	Cl ass.	ALL MAN	No. in lakhs.	Percentage.	
· · · · · · · · · · · · · · · · · · ·	i	19:24 co-17:27	2	3	
		Paragraph and the state of the			
Infants and	children of a	ge 0 to 9	1.09.01	27.1	
		ge 0 to 9	44.25	11.0	
Total of La	end 2 as young	g dependents	44.25 1,53.26	11.0 38.1	
Total of 1 a Elderly per	end 2 as young sons of age 60	g dependents	44.25 1,53.26 28.96	11.0 38.1 7.2	
Total of 1 a Elderly per	end 2 as young sons of age 60 2 and 4 cons	g dependents	44.25 1,53.26	11.0 38.1	
Total of 1 a Elderly per Total of 1, popula	and 2 as young sons of ago 60 2 and 4—constion.	g dependents	44.25 1,53.26 28.96	11.0 38.1 7.2	

- 16. The low proportion of (a) the employable and of (b) the economically active population to the total population.—This calculation gives us the population of the working age-group or the available labour force to be 220 lakh or 54.7 per eent of the total population. But it is not possible for the whole of this number to be gainfully occupied and allowance has got to be made for the following categories to be outside the labour market out of the working age-group:—
 - (1) Students and apprentices above 14 years old.
 - (2) Inmates of jails, hospitals and invalids.
 - (3) In every stage of economic growth a large percentage of women have got to be occupied in house-keeping. In a predominantly agricultural society, there is a large volume of work of processing foodgrains and of other end processes of agriculture done by women which is not formally classes as productive.

Making allowance for all these, the present convention or standard is to consider 40 per cent of the total population to constitute the work force. This norm makes quite a liberal allowance for the margin outside the work force.

According to this standard, 160.90 lakh of our population of 402.25 lakh should have been at work. But the census tables of livelihood of 1951 showed that out of the total population of 402.25 lakh only 127.07 lakh was returned as self-supporting. If we deduct the rentier class numbering 81 thousand in the agricultural and 41 thousand in the non-agricultural sector, we get only 125.85 lakh persons as productively or gainfully occupied. This means that whereas 54.7 per cent of the total population constitutes the employable labour force, only 31.6 per cent was self-supporting including the rentier class and only about 31 per cent was economically active. We may also note that, as analysed later on in this chapter, out of the 125.85 lakh of the population which was returned formally as gainfully occupied 47.43 lakh out of the 109.69 lakh in agriculture were redundant. Hence, only 20 per cent of the total population is actually economically active. These remarks may be summarised in the following manner:—

		Figures in lakh.
(1)	Total population in 1931, or in 1953 within the present area of the State and made up of about equal number of persons of each sex.	4,02.20
(2)	Population of the working age-group 15 to 59	2,20.03
(3)	Margin of students, apprentices, those in domestic work, invalids, persons socking job, those not in need of work.	59.13
(≇)	Forty per cent of the total population after deducting the number in (3) not available for work from the number in (2) in the working age group and thus giving the number which should be at work.	1,60.90
(5)	Number returned as self-supporting persons made up of 110.49 lakh of agricultural (rentier 81 thousand included) and 16.57 lakh non-agricultural (rentier 41 thousand included) repulation.	1,27.07
(6)	Number which was not economically active even out of the 40 per cent of the population arrived at after deducting the number in (5) from that in (4). (We may allow the small number of 1.22 lakh rentier to be regarded as active in property management).	3 3.83
(7)	Number calculated by us as redundant labour force on land out of 110.49 lakh persons engaged in agriculture.	43.78
(8)	Aggregate of the population which was unemployed, under-employed counted in units of unemployed, not job conscious or otherwise idle arrived at by adding up the numbers in (6) and (7).	87,61

These calculations show that only 20 per cent of our total population, or 36 per cent of those in the working age-group or 50 per cent of those who on any account ought to be effectively active are at work.

We may compare these figures with the statistics of gainfully occupied persons in some other countries given in the I.L.O. Year Book of 1953. We find that the figures are not exactly comparable since the percentages in the industrialised countries are of the age-group of 15 to 65. But the difference is remarkable. Thus in the U.S.A. 58 per cent of the male and 21.5 per cent of the female population or 39.5 per cent of the aggregate was employed. In the U.K. in 1951, the percentage was 66.8 for men and 27.2 for women, making a total of 46.2 per cent of the entire population. In the same year 46 per cent of the total Japanese population was at work, made up of 54.6 per cent of men and 31.1 per cent of women.

17. THE CAUSES OF THE LOW PROPORTION OF THE ACTIVE POPULATION.

- 17.1. Cumulative effects of a large inactive population.—Such a situation easily exp'ains the low level of national and individual income or the poverty of the country. You further reasoning it would be clear that both unemployment as well as employment generate further unemployment and employment, respectively. Hence, this massive figure of the unemployed population is by itself an explanation of the self-propagating unemployment in our economy. But this high figure of the inactive population calls for explanation.
- 17.2. Norms of the proportion of active population.—We have already analysed that it is not expected that the entire adult population even in the most advanced countries would be gainfully occupied within the market or monetised economy. We have to allow for the student population above the age of 14. Next there would be the inmates of jails, hospitals, asylums and a certain percentage of invalid persons and those not otherwise able or willing to work. Finally, there would be those women who are not able to enter the labour market on account of their work of keeping homes or rearing children. There would also be a normal level of adult men and women who are inactive but in process of getting into work for the first time or changing from one kind of work to another. But what we conclude is that all these categories fail to explain the large percentage of our inactive adult population. The formula of labour force participating rates expects 90 per cent of the male and 36 per cent of the female population of the working age-group to be economically active. We have adopted the modest norm that 40 per cent of the total population should be gainfully occupied.
- 17.3. The size of the rentier class offers no explanation.—The small number of about \$1 thousand rural and about 41 thousand urban rent receivers as well as certain other classes living on transferred income have been included in the self-supporting population numbering 127.07 lakh. Even if the number of these classes is deducted we get only a total of 125.84 lakh persons as economically active. Moreover, the so called rentier class is at least occupied in managing the properties and we feel inclined to count it as economically active.
- 17.4. The number of women engaged in domestic work.—A more convincing explanation lies in the large number of persons, specially women, engaged in domestic work. Taking the entire 127.07 lakh of self-supporting population out of the 220.03 lakh employable labour force, we find that in the agricultural sector the number of gainfully occupied women was 31.97 lakh as against 78.52 lakh men. In the non-agricultural sector there were 2.97 lakh women against 13.60 lakh men. Thus, out of the 109.40 lakh women of the working age or of 80 lakh according to the 40 per cent formula, only 31.97 lakh were engaged in agriculture and 2.97 lakh in the non-agricultural occupations. This shows that about 17.5 per cent of the female population was employed as against 21.5 per cent in the U.S.A., 27.2 per cent in h U.K. or 31.1 per cent in Japan. If, however, we consider the amount of subsidiary activities of women on farms, the percentage in rural areas is not very low. But it is low for the urban female population, and more so if the percentage for the urban area is considered separately for women.
- 17.5. The population in the age-group 15 to 18.—Another explanation for the large percentage of the inactive population may lie partially in the fact that although we have calculated the population of the age group 15 to 59 as constituting the labour force, young men and women begin to become serious about regular employment only when they are between 16 to 18 years of age. Though the number of persons in this age-group is not available, it can be calculated from the life and survival rates tables to be quite appreciable. The records of the Employment Exchanges also corroborate this view. But, on the other hand, the 40 per cent formula having already

allowed for this margin, it offers no explanation for 92.96 lakh of the work force being inactive in all or at least 33.89 lakh out of the 40 per cent norm.

17.6. Voluntary and involuntary unemployment.—All these considerations and calculations show that the greatest single factor accounting for the non-utilisation of the available labour force is voluntary unemployment. We find that apart from the large number of women engaged in domestic work, the rest are those who, for one or more reasons, do not feel the necessity for work, or are not conscious of the possibilities of employment or those who might like to work but who see no opportunities and have not exerted to enter the labour market.

18. THE REDUNDANT LABOUR FORCE IN AGRICULTURE.

18.1. The concept explained.—We are now explaining the method adopted for calculating the redundant farm population. It is usual that every adult male member of a cultivating family owning a family holding is declared as engaged in cultivation whether there is enough of work for all of them or not. Even if the holding is so small that the usual complement of a pair of bullocks is not being kept, or the land has been let out on share-cropping, all the adult members were generally declared as occupied at the time of the last Census. Although this attitude developing during the last few years are becoming more job minded, the Census enumerators appear to have followed the practice of entering most adult male members of a cultivating family as gainfully occupied. For this reason, even the figure of 110.50 lakh adult persons (78.50 lakh male and 32 lakh female) returned as self-supporting or gainfully occupied in the agricultural sector out of the total of about 127.07 lakh persons as self-supporting appears to be an inflated figure by inclusion of a large redundant adult population on land. It is proposed to estimate the extent of this redundant population on land in order to establish a more accurate approximation of the extent of the utilisation of our man power resource and of the size of unemployment and under-employment by an indirect method. The various enquiries by the agencies of the Central Government and other state governments have sought to estimate the volume of unemployment and under-employment in the agricultural and rural sector by means of schedules of man-days worked by each person connected with land in course of sample surveys. This Committee, too, is conducting a similar survey with this difference that whereas the other enquiries, referred to above, collected the data in course of a month or two wherein those interviewed for the purpose gave their statements from memory, our Agricultural and Rural Unemployment Sub-Committee has been collecting returns, week by week, spread over a whole year. While these data, at present in course of tabulation, would present much more reliable materials on the subject, we are providing here a cross check by formulating the concept of the "Redundant Farm Population" and seeking to measure it deductively. The method adopted for the calculation of the redundant farm population makes it unnecessary to calculate under-employment separately. Any under-employment resulting from the adverse operations of the controls of nature is taken or assumed as a constant factor along with the fact that very often, the urgency or necessity of timely operations in agriculture also necessitate spells of over-employment when farmers have got to work through day and night or till late at night as for sowing, transplanting, weeding, harvesting, threshing, and so on.

The results of the calculations of the redundant farm population for each district (without making the rectification for the transfer of areas in Purnea and Manbhum to West Bengal) are presented in the statement which follows. The work force of men and women has been lumped together as no separate calculation is possible. It may also be noted that this method of calculation dispenses with the need of calculating under-employment separately. As just referred to, not only spells of unemployment ket also those of over-employment is inevitable in agriculture.

TABLE 12.

AN ESTIMATE OF THE REDUNDANT FARM POPULATION IN BIHAR IN 1951.

District.		Cultivated land net area including	Self-si	gnitroqqi thous	g cultivat and),	ers (in		sisten ce ldings.	No. of adults ont 2 per	Redundant adult popula- tion land in thousard.
Districe.	(i) thous	rrest fallow (in thousand, acres.)	Owned land.	Un- owned land,	Culti- vating labourer	Total.	Size in acres.	No. of such holdings in thousand.	holding in thousand.	
1		2	3	4	5	6	7	8	9	10
Patn3		11,40	3,35.6	40.0	1,82.6	5,58.2	7	1,62.9	3,25.8	2,32.4
Qaya		21,20	5,21.3	41.6	2,16 5	7,79,4	16	2,13.9	4,26.0	3,53.4
Shahabad		18,84	4,62.1	73.1	1,54.6	7,09.8	10	1,88.4	3,76.8	3,83.0
Baran		14,64	6,73.8	47.5	1.18.2	8,39,5	7	2,09.1	4,18.2	4,21.3
Champaran		17,80	3,92.1	88.2	2,98.3	7,78.6	7	2,54.3	5.08.6	2,70.0
Muzaffarpur		16,78	5,14.3	79.1	3.98:1	9,91.5	7	2,39.7	4,79.4	5,12.1
Darbhanga		18,82	4,51.4	1,14.9	4,1,.6	1,008.9	7	2,68.9	5,37.8	4,71.1
Monghyr		17.87	4,02.9	1,09.6	2,73.8	7.86. 3	8	2,23.4	4,46.8	3,39.5
Bhagalpur		8,96	1,54.3	57.8	97.9	3,10.0	8	1,12.0	2,24.0	86.0
Saharsa	••	757	1,47.4	79.8	1,09.4	3.36.6	9	94.6	1,89.2	1 47 4
Purnes		24,35	3.06.1	1,53.9	2,45.0	7,10.0	10	2,43.5	\$-0.40	2,23.0
Santhal Parganas	1	21,12	8,06.2	30.2	63.3	8,99.7	8	2,64.0	5,28.0	3,71.7
Hazaribagh		14.82	4,43.6	11.00	51.6	25,06.2	10	1,48.2	2,96.4	2,09.8
Ranchi		26,70	5,14.4	7.87	13.4	7 5,50.6	10	2,67.0	5,34.0	1.6
Palamau	619	11,09	1,93.4	15.6	58.7	2,67.7	10	1,10.9	2,21.8	45.9
Manbhum		14,28	5,23.3	21.8	69.1	6,14.2	7	2,04.0	4,08	2,06.2
Singhbhum		907	2,76.5	9.0	49.9	3,35.4	10	: 0.7	1,81.4	1,54.0
TOTAL		2,75,41	71.18.7	9,85.9	28,63.0	1,09,67.6		32,94.6	65,89.2	43,78.4

18.2. The method of calculation explained.—Before we comment on the conclusions of the calculations in the foregoing table, the procedure of the calculation and the columns in the table require explanation. The first column gives the names of the districts. To avoid re-calculating a large number of derived figures, the statistics before the transfer of the areas to West Bright have been made use of. In the second column the net area shown in the year 1950-51 has been taken and the area of current fallow has been added to it. This addition has been made because, except in certain districts of South Bihar and Chotanagpur, current fallow does not mean that the land is just left to take care of itself. Current fallow in all the thickly populated districts is subjected to continuous ploughing, manuring and weeding and provides as much employment to the cultivating family and to the bullocks as the cropped fields.

The next four columns give the districtwise number of the economically active male and female population cultivating their own land, cultivating lands which are not owned.

and the labourers returned in the Census of 1951 as primarily engaged in agriculture. The total of these columns gives us the total number of farm population.

The column showing the standard size of the average family holding needs explanation. It is an important conceptual device absolutely necessary for measuring the extent of the redundant farm population. It seeks to formulate the concept of the tripartite partnership of laud, the farming family and the farm livestock. The size is such as can be managed by the adult male with the help of the female members and of such work by a growing child or two as is usual in all farming families working their land. Observations show that the average family farm can be worked by two full labour units or man-years with the help of a pair of bullocks. The internal organisation is fairly flexible. Thus, if the principal male members of the family are too young, the help of an agricultural labourer is taken. On the other hand, if there are two full time working adults, the fractional labour force of the women and the children enable more intensive types of work to be taken up or makes it possible to increase the number of farm animals. This feature of the farm animals introducing a flexibility in the employment scheme may be noted as it is the subject of a separate recommendation by the Committee based on the fact that the wet monsoon season being limited only to a few months in the year, Bihar, or India is not suitable for pasture farming for animal husbandry. Hence the system of stall feeding and mixed arable-animal farming will be the inevitable type of the farm enabling a more intensive use of labour. So subsistence farm is a tripartite partnership of an area of land, a complement of farm animals and the working members of a family for mutually sustaining economic efforts of all. The men and women, and often the children serve the land and the animals. The animals as well as the family members are nourished by the land. The animals, in their turn, provide power and manure for the farm as well as some cash income for the family. Taking these features into account and accepting the existing farming practice, the size of the standard farm adopted for each district has been determined by the natural conditions of the soil and certain differences in the farming practices. For example, the cu rent fallow calls for as much exertion in many districts as the cropped fields. But in other districts like Palamau, Singhbhum, Ranchi and so on, current fallow is just allowed to recuperate under conditions of nature and a larger size of the family farm is possible. वास्त्रधिक ज्ञान

The number of subsistence farms in each district is obtained by dividing the cultivated area in the second column by the number of acres constituting a subsistence farm. Then taking two adult labour units as necessary for each farm we arrive at the total farm population required for the district. The flexibility of this standard of two man-years for each farm has already been explained. It is for this reason that we have not debited here the 7.5 lakh of male and 6.5 lakh of female earning dependents assumed to belong mainly to age-group of boys and girls below 14 years.

By deducting the number of the work force thus required from the number shown as engaged on farms in the Census tables of 1951, we get the redundant farm population. The fact that of the 110.5 lakh farm population, about 43.8 lakh are redundant is bound to cause an uneasiness for any authority responsible for planning the proper utilisation of our labour force. At the same time, it is very significant to note that if farming intensity can be increased by 50 per cent on the lines indicated in the section on intensive farming in the chapter on the employment potentials of the basic sector, this unemployment comes down to 16.39 lakh man-years.

18.3. Caution needed for calculating the redundant rural population on land.—The calculation of the optimum land-labour ratio, however, is not a simple task. It will be different for different patterns of cultivation depending on the density of the cropping scheme and the composition of the different kinds of produce raised. These would depend to a great extent on the prevailing practice and favourable natural 39 Lab.—18

conditions. Again it would depend on the number of farm animals in a mixed farming. It would be further determined by the extent to which the subsequent storing and processing of the produce is undertaken on the farm or within the family as against the produce being sold straightway. All these conditions can be brought out only by detailed enquiries. Another method of calculating the extent of labour force activity would be to calculate the effective work-days during the year. This method would give the results in terms of under-employment whether arising out of surplus of the labour force on land or out of the seasonal nature of agricultural operations. It would be useful to know the correlation between these two causes and the volume of under-employment due to each separately. It may also be noted that if we adopt the methods so described, the complexity created by the multiple activity status would not be of much significance to us since we would be measuring the volume of unutilised human resources. The rural craftsmen generally always combine more than one activity by way of insurance just as the agricultural worker does, and it should not be difficult to calculate the volume of work or man-days that a family may like to take up and the volume of work or man-days of work available. This is a standard method now and was adopted for our rural unemployment survey covering both agricultural and non-agricultural activities.

18.4. Accuracy of the calculation in relation to other sources.—This calculation is also supported by the figures of employment intensity calculated in the Ninth Round of the National Sample Survey given in the succeeding paragraph. It shows that if per hundred of the farm population 4,800 hours is to be regarded as the normal intensity of work per week, there is work available only for about 3,600 hours. In other words, the proportion of the redundant labour force on land is about 12 to 48 or 1 to 4. Our own sample survey of rural unemployment brings out approximately the same picture.

18.5. Recent estimate of rural unemployment by the Ninth Round of the National Sample Survey.—The Ninth Round of the National Sample Survey has worked out a table showing employment intensity of the gainfully employed rural population which is given below and brings out the extent of under-employment of the farm population.—

TABLE 13.

Percentage of gainfully employed farm population. Weekly hours at work. Male. Female. Total. 1 2 3 4 No work 4.92 6.95 11.87 1 to 7 hours 0.82 0.87 1.69 8 to 14 hours 2.05 1.87 3.92 15 to 28 hours 6.085.4111.4929 to 42 hours 10.60 6.73 17.33 ... 43 to 56 hours 24.77 7.89 . . 32.66 57 to 70 hours 14.58 2.54 17.1271 and over 3.56 0.36 3.92 844 Total 67.38 100.00 32.62

19. Employment in the urban sector.—The subject of employment in the urban areas has been examined in a separate chapter summarising the results of the Urban Unemployment Survey in the State by this Committee in 1954. We are reviewing

the position of employment in the urban areas in this place from a broad point of view. Out of the total population of 402 lakh in this State, 27 lakh lived in towns. But the towns are not homogenous in characteristics and the Class IV and V towns have got a number of essentially rural features.

Any aggregation of population presupposes the existence of more intense economic activities. Moreover, concentration of population itself creates more employment avenues of diverse kinds. But the under-developed nature of our economy is brought out both by occupational pattern as well as the low level of average income even in the urban areas which have been examined separately.

The sample survey of 1954 covered 15 towns, with 4,716 families and a population of 37,028 persons (19,315 male and 17,713 female). It is expected that the conclusions drawn from this sample are applicable to the entire urban population. It was found that 57.7 per cent of this population belonged to the working age group of 16 to 60, of which 10,884 were male and 10,465 female. Thus 50.9 per cent of the male, and 49.1 per cent of the female population was in the age-group 16 to 60.

It was found that 1,663 out of the total of 4,716 families surveyed were affected by unemployment. This gives rather a very high figure of 35.2 per cent of the families as complaining of unemployment. It was also found that out of the total employable male population of 10,884, 15.4 per cent was unemployed.

Taking the three classes of the towns sparately, a find that 15.69 per can' of the employable male population of class I towns (population one lakh and above), 17.52 p r cent in the class II towns (population 50 thousand to 1 lakh) and 13.88 per cent in the class III towns (population 20 thousand to 59 thousand) was unemployed. These figures of percentages are in addition to those of partial unemployment affecting 6.56 per cent, 6.89 per cent and 7.70 per cent of the employable population in the class I, II and III towns respectively.

20. Employment in the non-agricultural sector according to the Census Tables.—The Census classification divides the livelihood table between rural and urban sectors and then between agricultural and non-agricultural sectors which cut across both. Thus there is an agricultural sub-sector within the urban sector and there is a non-agricultural sub-sector within the rural sector. Of the 127.07 lakh of the self-supporting population, 16.57 lakh belonged to the non-agricultural sector (13.60 lakh male and 2.97 lakh female). It was 13 per cent of the total self-supporting population of 127.07 lakhs. Of this total non-agricultural self-supporting population of 16.57 lakh, 10.67 lakh were in the rural and 5.90 lakh in the urban area.

Of the total of this self-supporting non-agricultural population, 72.7 thousand were returned as employers, 757 thousand (or 7.57 lakh) as independent workers and 786 thousand (or 7.86 lakh) as employees.

- 21. The occupational pattern according to the Census Economic Table III.—We are summarising below the details of this table with a view to presenting a picture of the occupational pattern. We are also giving the comparative all-India figures of employment in each Division in order to show the lines of activities in which our economy is deficient and where there are scopes for further expansion of employment in this State.
- 22. The Divisions and Sub-Divisions of the non-agricultural occupational table of Census.—Division O embracing 6 sub divisions covers primary industries not elsewhere specified. It includes the occupations of stock-raising, plantation industries, fishing, forestry and wood-cutting, collecting forest produce, hunting and rearing of poultry, silk-worm, bee-keeping and lac cultivation, etc. These occupations gave employment, according to the Census to a mere 37.63 thousand males and 9.19 thousand females in Bihar. The all-India figure in this division was 2,400 thousand (7.4 per cent of the working population).

Division 1 with its 8 sub-divisions covers mining and quarrying of coal, non-metallic materials like stone, earth, etc., iron-ore, non-ferrous ores, petroleum, mica, salt and such substances as salt-petre. The number returned as engaged in these activities was given as 136.23 thousand men and 30.48 thousand women in Bihar against 570 thousand in India. Thus Bihar is well represented in this Division. Even the all-India percentage is only 1.8.

Division 2 with its 10 sub-divisions is very important from the employment point of view and embraces most of the consumer goods industries. It embraces the processing of food-stuffs like the milling of cereals and pulses, hand-pounding of rice, flour milling and flour grinding, grain parching, processing of vegetable oil and dairy products, sugar industries, browing, distilling, toddy tapping, manufacture of acrated water and ice. The manufacture of cigarattes, bidis, cheroots and snuffs is given a sub-division of its own. The cotton textile sub-division includes cotton ginning, cleaning, pressing, spinning, sizing, weaving, bleaching, dyeing and printing. The wearing apparel sub-division accounts for tailors, dress-makers, hosiery and embroidery workers. Another sub-division of textiles embraces activities of all categories (as wi h cotton) relating to jute, wool, silk, hemp and flax as also rayon manufacture and the rope and twine industries. The sub-division of leather, leather products and footwear is another important constituent. The total number of persons engaged in all these consumer industries is only 114.81 thousand men and 29.31 thousand omen in Bihar as against the all India rigure of 5,510 thousand persons (17 per cent of the total working population) for the whole of India. It may also be noted that over 50 per cent of those engaged in these activities were in the rural areas.

Division 3 with its 9 sub-divisions covers the "processing m nufacture of metals, chemicals and the products thereof". It covers all categories from the giant iron and steel mills to the village blacksmith. In detail, it includes the implement makers braziers; the basic iron and steel workers in the blast furnaces, stell and other mills; workers of copper, aluminium and other non-ferrous metals; makers of transport equipments from locomotives to bullockcarts (sub-division 3.3); makers of electrical machinery, apparatus, appliances and supplies (sub-division 3.4); those engaged in manufacturing other machinery including those in the engineering workshops (sub-division 3.5); employees and workers in the basic industrial chemicals, fertilizers and power alcohol factories (sub-division 3.6); persons engaged in medical and pharmaceutical preparations (sub-division 3.7); those engaged in the manufacture of other chemical products (3.8). The total number of persons (employers, employees and self-employed) in all these industries in Bihar was 70.88 thousand men and 5.89 thousand women against the all-India figure of 1,240 thousand or 3.8 per cent of the labour force.

Division 4 with its 10 sub divisions is a miscellaneous class of "Processing and manufacturing not elsewhere specified". But they are very important whe we look into the 10 sub-divisions which are:

- 4.0. Manufacturing industries otherwise unclassified.
- 4.1. Products of petroleum and coal.
- 4.2. Bricks, tiles and other structural clay products.
- 4.3. Cement pipes and other concrete products.
- 4.4 Non-metallic mineral products like earthenware, porcelain, crockery, glass, glass bangles and beads, etc.
- 4.5. Rubber Products.
- 4.6. Wood and wood products other than furniture and fixtures.
- 4.7. Furniture and fixtures.
- 4.8. Paper and paper products.
- 4.9. Printing and allied industries.

We shall look into the details in our chapter on the manufacturing industries. But we easily see how here is a vast field in which some developments are taking place and further growth is expected in our State. The total employment in this Division in Bihar was of 72.87 thousand men and 18.94 women as against 2,430 thousand persons (7.5 per cent) occupied in these activities in the whole of India.

Division 5 consists of important employment creating activities which must expand in a growing economy because it is concerned with "Construction and Utilities". It includes all workers engaged in construction and maintenance of buildings, roads, bridges, railroad, telegraph and telephone lines, irrigation and other agricultural works. It also includes those who work and service electric power, gas supply, domestic and industrial water-works and sanitary works. It also includes the seavengers.

The total employment under this head in Bihar was only 49.80 thousand men and 16.85 thou and women against 1,590 thousand (4.9 per cent) in India.

Division 6 is another omnibus category called "Commerce". It contains most of the end-products of the employment-generating processes of economic growth and embraces retail trade in general, retail trade in food-stuff, retail trade in fuel including petrol, retail trade in textile and leather goods, who less trade in food-stuffs, who less trade in non-food commodities, trade in real estate, insurance, money, banking and financial business. The total employment in Bihar was of 301.57 thousand men and 74.43 thousand women against 5,900 persons (182 per cent) in India.

Division 7 accounts for employment in transport, storage and communications. It covers employments in transport and communications including incidental services of miscellaneous types, transport by road, transport by water, transport by air, railway transport, storage and warehousing, postal services, telegraph services, telephone services and wireless services. From the employment point of view these are the superstructures as well as necessary overhead ancillaries of economic growth with great future prospects. So far, they provided employment only for 93.44 thousand men and 6.17 thousand women in Bihar against 1,900 thousand persons (5.9 per cent) in India.

Division 8 covers persons engaged in Health, Education and Public Services. It includes Doctors even if they are Government employees, but excludes the staff of the railway, posts and telegraphs, the P.W.D. staff and the employees in the State enterprises.

There were 97.41 thousand men and 15.03 thousand women in this Division in Bihar against 3,290 thousand (10.2 per cent) persons in India.

Division 9 is the residual one of all this classification and is called "Services not elsewhere specified". But it is very important from the employment point of view. It contains a large number of persons of multiple activities, and activities not easily classifiable. The more definite sub-classes are the persons in domestic services, barbers, laundry-men, keepers of hotels and eating houses, persons in recreational services, those in legal and business services, persons engaged in arts, letters and journalism. These gave employment to 359.96 thousand men and 75.24 thousand women in Bihar against 7,540 thousand person (23.3 per cent) in India.

23. Post-census Estimates of Employment and Unemployment.

23.1. The all-India estimates of unemployment.—The Second Five-Year Plan Report estimated the volume of unemployment at the beginning of the Second Plan period on the basis of the figures available from the Agricultural Labour Enquiry (1950-51). Urban Unemployment Survey by the National Sample Survey of 1953, inferences from the trends of the Employment Exchange register and other data, to have been 25 lakh in the urban and 28 lakh in the rural area in the whole of India. It was further calculated that allowing for the shift of the population from rural to urban areas,

there would be an addition of new entrants during the second plan period to the extent of 38 lakh in the urban and 62 lakh in the rural areas to the labour force. Thus, it was estimated that the nation had the liability for providing 63 lakh jobs to the urban and 90 lakh jobs in the rural areas or a total of 153 lakh (15.3 millions) jobs by the end of the Second Plan period. A recent study by the Ministry of Labour and Employment (Directorate-General of Resettlement and Employment) and the Planning Commission has estimated a downward revision of this figure of the nacklog but has at the same time estimated an upward revision (from 10 millions to 11.8 millions) of the additions to the labour force during the Second Plan period. The total effort needed for eradicating unemployment remains, however, the same viz., creation of 15 million employment opportunities during the second plan period. The same study puts the revised estimates for employment opportunities likely to be created in the Second Plan period at a little below 8 millions as against 9.6 millions originally estimated. The net result is, therefore, that while the econd Plan started with a back-log of unemployment at less than 4 millions, the Third Plan will have to start with a handicap on the employment front to the order of over 7 millions apart from the new entrants to the labour force during the Third Plan period.

- 23.2. Derived calculation of the labour force seeking employment in Bihar during the Second Plan period.—On the basis of the population of Bihar to the population of India as a whole, the increase in the labour force during the Second Plan period would be 12.8 lakh and the total volume of liability for providing employment should be for 17 lakh.
- 23.3. The data of the Employment Exchanges.—Until the Employment Market Information Programme has extended its coverage, we may now turn to the figures of the Employment Exchange as a very useful guide to indicate both the incidence of unemployment of these already in the labour market as well as the number of persons entering the labour market from year to year for the first time.
- 23.4. Analysis of the registrants on the live registers of the Employment Exchanges of Bihar.—An analysis of the applicants on the Live Register of Employment Exchanges in Bihar, by age, shows that 65.9 per cent of the applicants seeking employment were within the age-group 18-25 and that 4.3 per cent of the applicants were below 18 years of age as on the 31st December, 1958. The corresponding figures for the 31st December, 1959 were 70.9 and 3.5 per cent respectively. (Although no separate statistics are maintained for them, the number of applicants below 16 years of age registering with the Employment Exchanges is insignificant. Virtually, therefore, the applicants of 16—25 years of age comprised more than 70 per cent of the total registrants.) The figures for different age groups by end of 1958 and 1959 are given in the following table.—

T	ΔF	LE	14

Time Reference.	Total no. of applicants.	Below 18 years.	18—22 years.	23—25 years.	26-35 years.	36—45 years.	46 years and over.
1	2	3	4	5	6	7	8
31st December 1958.	80,247	3,449	28,103	24,814	18,056	5,071	754
20007	Percentage of total.	4.3	3 5.0	30.9	22.5	6.4	0.9
31st December 1959.	84,377	2,932	32,418	27,43 3	18,171	3,143	280
	Percentage of total.	3.5	38.4	32.5	21.6	3.7	0.3

A further analysis of the industrial classification of the applicants seeking registrations at the Employment Exchanges also brings out this position. Although the

position had varied from month to month, the undermentioned table shows that during the year 1958 on an average 44.5 per cent (42.5 per cent during 1959) of the applicants registering at the Employment Exchange were new entrants to the labour market. (The Industrial classification used at the Employment Exchange is based on the "Standard Industrial Classification" adopted by the Government of India. The concept of new entrants covers such persons who have not so far worked for livelihood either as employees or on their own account.) The following table gives an analysis of industrial classification of applicants registering with the Employment Exchanges in Bihar during the years 1958 and 1959:—

TABLE 15.

	Month.		Total registration.		No. of new entrants to the labour force.		Percentage of new entrants to the total applicants.	
			1958.	1959.	1958.	1959.	1958.	1959.
	1		2	3	4	5	6	7
January	••	• •	18,004	11,414	8,248	5,855	45.8	51.3
February	••	••	11,204	10,686	5,054	5,093	45.1	47.7
March	••	• •	11,421	8,234	4,113	4,087	36.1	49.6
April	••	• •	9,892	10,184	4,385	5,567	44.3	54.7
May		• •	9,842	10,771	4,781	6,006	48.5	55.\$
June	• •		10,524	10,051	4,774	4,736	44.4	47.1
July		••	22,048	11,670	14,775	4,439	67.0	38.0
August	• •		23,585	10,635	12,304	6,229	52.1	58.6
September			15,872	23,384	7,985	6,522	50.3	27.9
October			21,067	15,442	4,680	4,205	22.3	27.2
November			15,338	12,784	4,928	5,112	32.1	40.0
December	••	• •	13,095	13,607	4,998	5,429	38.1	39.9
Total for the year		•••	1,81,892	1,48,862	81,005	63,280	44.5	42.5
Monthly average		••	15,158	12,405	6,752	5,273	44.5	42.5

^{23.5.} Increases in registration at the Exchanges.—We noted at another place how the earlier formula was that about one-fourth of the persons unemployed or seeking employment registered themselves with the Exchanges. Now it has been estimated that the proportion of the unemployed registering themselves at the Employment Exchanges has increased at the rate of 1 per cent per annum and this proportion was estimated at 32 per cent in September, 1958. (Unemployment in Urban Areas in India—A study by Directorate-General of Resettlement and Employment, Government of India, Ministry of Labour, page 18, para. 4.6.)

The following figures about the skilled and semi-skilled persons on the registers of the Employment Exchanges during the years 1954 to 1959 show that unemployment

^{23.6.} Skilled and unskilled registrants.—Another feature of the growth of the labour market and unemployment is brought out by the increasing number of skilled persons registered with the Employment Exchanges.

also exists amongst the technically qualified candidates. In fact the percentage of these eandidates to the total registration, had increased from 6.8 per c.nt in 1954 to about 9 per cent in 1958 and 1959:—

TABLE 16.

THE STATE OF THE S	Year,		e	Cotal no. of applicants on the Live Registers of the Employment Exhanges in Bihar at the end of the year.	Skilled and semi- skilled persons on the Live Registers of the Employment Exchanges included in column (2).	
	1			2	3	4
1954	••	••		51,868	3, 559	6.8
1955	• •			54,928	3,635	6.6
1956		• •		68,120	4,926	7.2
1957	• •	• •	••	77,864	8,037	10.3
1958	• •			80,264	7,257	9.0
1959	••	••	• •	84,377	7,551	8.9

24. EMPLOYMENT STATISTICS AFTER THE CENSUS YEAR.

24.1. The absence of any definite trend of expansion.—The details regarding employment have been examined in the ehapters on primary, secondary and tertiary industries, and here only the general conclusions about the employment trends are given. In one of the earlier reports, the Industrial E ployment Sub-Committee ha noted that up to the year 1953, there was no indication of any definite trend of industrialisation. It was stated that even though between 1950 and 1952, the number of factories registered in the categories under sections 2(m) (i), 2(m)(ii) and 85 increased by 46 per cent, there was no increase but even a definite decrease in employment. The general trend is indicated by the following index of employment with 1939 as base:—

TABLE 17

Ye	ar.		Average daily employment.	Index of employment.
	1		2	3
1939			95,98 3	100
1947	• • •	• •	1,36,834	143
1948	• •	• •	1,48,208	154
1949	• •		1,54,730	162
1950			1,80,204	188
1951			1,92,150	200
1952			1,72,486	180
1953			1.71,673	179
1954			1,70,683	178
1955			1,73,698	181
1958			1,76,776	184
1957			1,80,202	188
1958			1,83,189	191
1959			1,87,2 9	195

^{*}The figures of average daily employment from 1953 include also the estimated average number of workers employed in the working factories which did not submit returns.

The following table gives the number of employees in the 29 out of the 52 scheduled industries from the returns of the Census of Indian Manufactures. The figures are not exactly comparable in view of the deviations in the coverage from year to year, but they corroborate the view of the lack of any definite trend of increase ndust, i empl ymen du ing he fit plan period in B har.—

TABLE 18.

Year.		Percentage of coverage.	No. of workers in thousand.	Persons other than workers in thousand.	Total no. of employees in thousand.		
		1		2	2 3		5
1943				51	74:30	19.22	93.82
1947				79	95.30	21.54	116:85
1948		••		85	94.70	22.40	117.84
1949				91	92.60	21.32	118.94
1950				97	87:76	23.14	110.90
1951				87	87.30	21.03	108.33
1952				92	89.14	21.85	110.99
1953				91	88.77	22.25	111.102
1954				95	88:78	22.42	I11.120
1955				99	106.02	26.27	132.29

24.2. In lustria and employment f uctuations.—While we have maily emphasised in our neest gations the under-utilisation of our huma resources owing to the stagnation of the economy, it may be noted that one of the reasons for the setting up of this Committee originally came from the acute unemployment in the typical small and cottage industries of Bihar. Generally such fluctuations are recurrent features of a developed economy, but they are just the passing deviations from the steadily mounting curve of production and employment. Such recessions in the advanced countries are precursors of another spurt of activity leading to further increase in production and employment above the level from which the temporary lapse had occurred. But the adverse effects of fluctuations in our economy are aggravated by the fact that they are superimposed upon an economy which is already stagnant:

The following tables give some details of the recession at the time when the Committee was appointed. They have been extracted from the Interim Report of the Sub-Committee which was duly submitted to the Government and led to ameliorative steps being taken on the basis of our recommendations:—

TABLE 19.

Statement showing number of workers employed in the registered factories by industries in the State (1951—1953.)

					1 10	Remarks
Industry.		••	year ending 31st De-		half year ending 30th	
				cember, 1952.	June 1953.	
1			 2	3	4	5
I. Engineering			 61,614	59,350	70,659	
2. Sugar			 22, 05	21,070	20,602	
Mica			 10,681	13,305	12,000	
4 Cement			 4,125	3.791	3,953	

TABLE 19-concld.

		1	Nun.ber of wo	rkers employe	duii.g th —	Re arks.	
\mathbf{Indust}	ry.		31st De- 31st De- endi		ial yer ending 50th June 1953.	Ito dias.	
1			2	3	4	5	
5. Paper	••	• •	1,309	1,367	1,220		
6. Electricity	• •		2,587	1,412	1,453		
7. Food	• •	••	9,373	11,917	11.348		
8. Jute	• •		6,493	6,300	5,975		
9. Textile exce	pt jute	••	1,007	825	669		
10. Press	• •	••	3,064	2,076	3,018		
11. Transport	• •		1,007	825	660		
12. Lac and sh	ellac	• •	7,804	5,107	3,145		
13. Bidi	• •		22,356	14,082	12,918		
14. Leather	• •		1,364	1,323	1,187		
15. Others	• •		30,197	27,461	12,019		
Grand tota	1		1,92,150	1,72,486	1,63,203		

TABLE 20.

Statement showing number of workmen retrenched or laid off during 1952 and 1953.

(Classified industrywise with reasons.)

İndus	try.	1952.	AReasons.		1953.	Remarks.
I		2	3		4	5
Engineering		21 2,230 7 6	Re-organisation and Rationalisati Depression	ion	28 522 115 1	
	Total	2,264			666	-
Sugar		1,334	Re-organisation and Rationalisat	ion	462	
		1	Surplus 🐷 🖦			
	Total .	1,335	-		462	-
Mica	.,	3,356	Depression and Trade recession	••	729	(registered
		4,385	Ditto	•.•	558	
			Participation in strike Misconduct		: 7 1	tories.)
	Total	7,741			1,305	_

In lustr	y.		1952	. Reasons	5.		1953.	Remarks.
1	·	anagkarakkarakkarakarakarak	<u>9</u>	3		·	4	8
Cement			5	Long absence	• •		8	, ,
			330	Re-organisation	••		••	
		Total	335				3	
Electricity			1,135	Closure on recount of con	aletion of	work	13	
			40	Rationalisation				
		Total	1,175				13	
Food	••		169	Closures and partial c depression.	losures du	e to	561	
			11	Unsatisfactory work	••		8	
			1	Ill health	••	••	••	
		Total	1.51				569	
Jute Textile			193	Depression Rationalisation	••		299 44	
		Total	193	37 (2172)			343	
rextile other than 3	Jute	• •	14	Depress on	••		61	
		Total	14	विद्यम्य नुप्रन			61	
Press		••	2	Depression	• •		6	
			928	Closure	• •	••		
			5	Inefficiency	••	••	4	
				Temporary	• •	••		
		Total	988				10	
Transport			9	Depression	• •		21	
		•	173	Closure and Reorganisation	on	• •	135	
		Total	182				156	•
Shellae		• •	2,697	Trade depression and slur	np	• •	1,962	(registere
			1,893	Ditto	••	••	N.A.	(unregis tered fa tories.)
		Total	4.500		·		1,962	

Industry.	1955	2. Reas ns.		1953.	Remark
1	2	3		4	5
Bids	8,274	Trade Recession	••	1,164	(registered factories.)
	7,000			N.A.	(unregis- ter d fac- tories.)
Total	15,274			1,164	-
Leather	41	Ro-organisation	• •	136	•
Total	41			136	•
Class, Posteries and others	161	Re-organisation and Rationalisation		340	
	2,240 427	Depression	anap.	15,095	
	8	Temporary, Absence, Misconduct, etc.	٠.	7	
Total	2,836	A. 18 10 10 10 10 10 10 10 10 10 10 10 10 10		15,442	- Tanàna

Authorities.—We have noted how the organised efforts of the Employment Market Information Programme are seeking to cover the fields of employment in their investigations. Figures for for q arters from the first round of the investigation be inning from the third quarter of the year 1958 are given below along with the annual figures (coverage varied from year to year and in no year it was complete) collected by the State Bureau of Economics and Statistics up to the year 1955. These show that the expansion of administrative activities has been steadily increasing the scope for employment. We shall be able to locate the trends more definitely when subsequent figures of the Employment Market Programme returns become available.

It may be noted that the figures of the Employment Market Information Programme also include employment in the productive organisations of the Government like the Railways, the Damodar Valley Corporation, the Sindri Establishments, the National Coal Development Corporation, etc.

TABLE 21.

Statement showing the number of employees of the Bihar State Government as on the 1st June according to the Census of the State Directorate of Economics and Statistics.

Year.	N	omber of State employ es.
1		2
1952		85,712
1953	 	97,021
1954	 	97,135
1955	 	1,17,466
1956	 	1,31,6,2

TABLE 22.

Statement showing employment in the public sector according to the investigation of the Employment Market Information Programme (1958-59)

Catagorias	Number of employees on-						
Categories.	30th June 1958.	30th September 1958.	31st December 1958.	31st March 1959.			
1	2	3	4	5			
1. Employees of the Bihar State Government	1,76,085	1,82,675	1,85,561	1,88,288			
2. Employees of the Bihar State quasi-Government establishments.	17,007	17,224	18,011	18,895			
3. Employees of the Local Bodies in Bihar	83,628	84,433	86,471	87,407			
Total of the State services	2,76,720	2,84,332	2,90,043	2,94,590			
4. Employees of the Cantral Government Establishments in Bihar.	23,852	24,062	24,563	25,274			
5. Employees of the Railways	. 1,09,659*	1,10,957	1,17,645	1,20,185			
6. Employees of the Central quasi-Government Establishments.	t 54,208;	57,510	60,128	62,446			
7. Employees of the Cantonment Boards	340	374	385	384			
Total of the employees of the Central Government.	1,88,059	1,92,003	2,02,721	2,08,289			
GRAND TOTAL	4,64,779	4,76,335	4,92,764	5,02,879			

^{*}It does not include 4 Railway establishments which had not rendered returns pending clarifications from their headquarters.

- 26. Prospects and projections of employment.—Having seen the different attempts at estimating the volume of the labour market, the number and proportion of new entrants or the annual growth in the labour market and other relevant details, we have now to estimate the annual addition to employment as a result of ecoromic growth. We notice here broadly four bands of the spectrum of employment in prospect.
 - (a) Fi.sily, there is the countable number of jobs created by the expansion of public administration and of industrial, commercial and transport enterprises in the public sector. The large transport and public utility enterprises are mostly in this band, though the next one may as well contain them.
 - (b) Secondly, there are the countable jobs in the large scheluled industries which have got to give details of all categories of persound when any enterprise is to be started or an existing one applies for expansion to the Licensing Committee under the Industries (Development and Regulation) Act, 1951. These enterprises are also covered by the Census of Indian Manufactures in most cases and by the Factories Act in all cases.
 - (c) The third band of the spectrum is made up of employment opportunities in the small cottage and self-employing processing or manufacturing enterprises partly covered and partly not covered by the Factories and Labour Acts. These enterprises generally grow as a result of the expansion of the more organised industries (as well as of the large public utilities including

IIt does not include 3 Contral establishments which had not rendered returns pending clarifications from their headquarters.

transport and communictions systems) as ancillary and derivative enterprises. Employment in them may be regarded as the multiplier effects of the large organised secondary and the primary sectors and even of the development of land uses. These enterprises may be based on the products of mines, agriculture, forests and arboriculture, large industries and the system of transportation of goods, information and values which all economic activities necessitate. Calculation of employment potentials in this band becomes more difficult even though its volume is many times the contents in the preceding two bands.

- (d) Finally, there are the terminal or peripheral results of the multiplier functions of the economy in all these three bands creating the sphere of numerically the largest volume of employment in the economy which is rather difficult to calculate. It has become usual to call this band "Commerce" though the contents are not exactly equivalent to the Commerce Division 6 of the Census but also embraces some subdivisions of Division 8 (Health Education and Public Administration) as well as all the subdivisions of Division 9 of the Services. Quite a number of what are often regarded as small industrial enterprises like repair shops also belong to this category. Moreover, the multiplier function works spirally by a series of chain reactions. By way of example, we may note that any casual observation would show how urbanisation has given rise to the rickshaw pulling business which, in turn, has given rise to investments by the small savers. Then it has given rise to the large number of repair shops, to the roud-side first-aid artisans and to road-side stalls of eatables. So the calculation of the employment generating effects of the first three bands of explanic activities on this fourth omnibus band calls for some more detailed consideration. We are considering this subject in the next section in connection with the technique of calculating the employment values of economic enterprises and projects.
- 27. The tools for calculating employment values of general economic growth and specific projects.—If we accept the principle that employment in the dynamic aspect is a function of the growth of an economy because population itself is growing, an examination of the factors of economic growth should give us fairly satisfactory analytical tools for calculating the prospects of employment. In our economy, which is not completely regimented and controlled and where quantitatively large sectors are operated by impersonal market forces no precalculated figures of g owth of employment as a part of the blu prints of Plans are available. We have, therefore, to use the converging methods of direct specific estimations as well as indirect and inferential calculations. We may start, at the most generalised level, by calculating the number of jobs which would be generated in terms of our annual investments on the basis of past experience. We may also attempt the difficult task of calculating employment multiplier values of these in the rest of the economy. We may not, however, be satisfied with such a broad generalisation, and the Labour and Employment Division of the Planning Commission has worked out methods of calculating the employment values of initial investments and of subsequent industrial operatio sin terms of the outlays in specific projects. In the sphere of the industries already in operation in which the physical output can be measured, the volume of the output is correlated with the volume of employment. These two methods, however, do not reach the third band of the spectrum very effectively and almost fail to give dependable estimates in the fourth band of the employment spectrum. We have made some suggestions later on for filling in this gap. Meanwhile, the picture thus presented may be further amplified and checked by means of the statistics of the Employment Market Information, the Employment Exchanges and the returns under the Mines, Factories, Labour and Shops and Establishments Acts and by sample surveys.

28. Investment in relation to direct employment and employment multiplier values.— During the first and the second plan period, the estimate is of an investment of ks. 9,500 crores creating 12 million jobs outside agriculture. This works out at an investment of ks. 8,000 per job on the average. It may, however, be noted that our economy has still got to attain the capital intensiveness of the advanced countries and the ratio of capital to jobs is likely to go up in future. It has already been calculated that the ratio of capital to annual output would go up as our economy attains higher technological levels. On the other hand, as a compensatory trend we find that the highly callual intensive basic and heavy industries and enterprises have got very much higher multiplier values on account of the very much larger number of nodal points from the hocher industries stem out or for which a larger number of feeder or anchary industries are needed. Thus their multiplier values are higher than those of the less capital intensive industries. This consideration brings out the basic importance of saving and capital formation and of the heavy basic industries for employment in the long run. We need not go again into the details of how the volume and value of gross product, net product, current consumption and capital investment are calculated and how far domestic savings and investments can and should be reinforced by foreign investments and borrowing from abroad. It is, however, important to note that generally savings available for investment, whether in public or private sector, can come mainly from the current income every year, and variation in the national income from year to year, is a definite handicap. We also note that the mobilisation of liquid resources is not brought about regionally but is an all-India question and it is not possible to calculate it for Bihar separately. So taking the all-India figures, we find that at constant 1948-49 prices our national income was Rs. 8,850 erores in 1950-51 and rose to Rs. 11,000 crores in 1956-57. Thus, there was an average increase of 4 per ent per year. But taking the growth of population into account during the period, the increase in ... a ita income was not more than 24 per ce t per year The percentage of net national income invested annually in accountable channels has been rising from 5.1, event in 1948-49 to 5.8 per cent in 1949-50, to 5.4 per cent in 1950-51, to 6 er cent in 1952-53 and 1953-54, and to 7 per cen in 1954-55. For the second plan period the target is of an annual investment of 10.7 pe c no of the net national income. We know that most of these come as forced savings through taxation. With regard to the annual investment out of saving (voluntary or forced) in India on which employment trend depends, we have to note one very great weakness. This lies in the fact that accounting for the nation lineame by origins and occupational categories, agricultural income is still the deminant single constituent. Thus, in the year 1955-56, out of the net income of Ks. 9,650 crores, Rs. 4,100 crores was accounted for by agriculture and this source of income is subject to very great fluctuations from year to year. Thus against Rs. 4,100 crores in 1955-56, it was Rs. 4,780 crores in 1950-51. On the other hand, in the year 1954-55, income from the agricultural sector stood at Rs. 4,230 crores and not more because agricultural prices were low as a result of favourable outturn. We, therefore, consider that in spite of the fact that even in the most advanced countries, agricultural outturn is subject to great fluctuations, one of the indices by which we should seek to assess the extent of the success of our agricultural policy would be the measure by which the variations between the peak and the trough of agricultural production are narrowed down. With regard to the fluctuations in industrial production, we find that the rate of annual increase in industrial production which was 8 per cent in 1956, went down to $3\frac{1}{2}$ per cent in 1957 and to 1½ per cent in 1958. These fluctuations are due to organisational flaws, bottle-necks, imbalances, lack of raw materials, labour difficulties, and so on, and should not be as intractable to human control as the conditions of agriculture.

29. CALCULATION OF EMPLOYMENT VALUES IN SPECIFIC SECTORS AND PROJECTS.

29.1. The labour and other components of an investment in a specific project.—For the formulation of concrete employment policies and for applying them, more detailed

calculations are necessary. The investment has got to be split up between machinery and materials on the one hand and men on the other. Ultimately the demand for machinery and materials also means demand for labour in so far as they are made or produced within the country or in so far as exportable surpluses for buying them have got to be produced. The calculation of these multiplier magnitudes i difficult but not impossible.

29.2. An account of how the technique of estimating the employment values of projects was worked out.—The calculation of the cost components of each enterprise for the constructional and for the operational (and maintenance) sides is not quite a new thing. Well organised private business enterprises had to work them out for themselves. The planning of economic development on behalf of the entire community, however, forced the method to become more accurate and systematic. In our own country, the technique of systematic working out of the cost components in terms of machinery, materials and men, i.e., real budgeting began with the River Valley Projects through the Technical Personnel Committee. Originally the Committee confined itself to the task of assessing the number of technical and higher supervisory staff required for each project firstly for the work of construction and then for maintenance and working. Further experience was gathered through the work of the Engineering Personnel Committee set up by the Planning Commission. Again, the individual schemes of the iron and steel plants, heavy electrical machinery manufacture, the coal mining projects, of the coal washeries, and so on, had to be worked out with proper estimates of engineering, supervisory, skilled and even semi-skilled personnel in advance with a view to arranging for their training so that they could become available as required. Further accuracy in calculations was achieved with the establishment of the Technical Personnel Training Committee in January, 1953 which had to forecast the requirements more comprehensively over a wider field of enterprises. As the work tended to become more detailed, it was found necessary to go down to estimating the working force at the lowest level of even unskilled workers. Meanwh le the state governments also had to add cells to all their development departme to like Agriculture, Animal Husbandry, Health, Education and Community Development for which the training of the required personnel in advance was necessary. This has necessarily meant the working out of formulae for the as ssment of the requirements and their application for exact calculations. Again, at the centre, all this work has been organised under the Scientific and Technical Marpower Division and the Perspective Planning Division of the Planning Commission which ecoordinate the work of the various Central Ministries and of the State Governments and seek to extend the calculations and training facilities to cover the lar er units in the private sector as well. Moreover, the Licensing Committee administering the Industries Development and Regulation Act of 1951 requires detailed calculations whenever applications for extension or starting of new enterprises are submitted. Finally, the Labour and Employment Divisi n of the Planning Commission, which is of more direct interest to us, is charged with the responsibility for looking at all these calculations from the all embracing point of view of the entire labour force of the community as it e ists and as it tends to grow from year to year. Thus the course of development, step by step, has brought about a complete revolution in outlook and the entire problem has been re-oriented and has become one of employment planning for the entire labour force of the community instead of piece-meal estimation of the personnel requirements of the specific projects from the point of view of the employers. It now becomes a question of surveying the entire spectrum of demand for and supply of labour of all categories and amounts to manpower budgeting. Thus by a systematic and logical series of empirical steps, the Planning Commission and Central Ministry of Labour and Employment have arrived at the final stage of surveying the working of the entire economy in terms of employment values or macro-economy of labour which has been the main anxiety of this Committee ever since the first meeting in 1954. We are dealing with the forecasts of employment in the different sectors and different industries; as far as possible, in the appropriate chapters.

30. Calculation of the employment values of the multiplier effects of the measurable investments and countable employment in the organised public and private sectors.—In spite of the great progress made in the technique and method of calculating employment values of investments and expansion of production, no accurate calculations or formulae for estimating the multiplier effects of such activities in the quantitatively largest sector of employment in much of the third and most of the fourth band of the spectrum of employment appear to be feasible. The fourth band or sphere which has been called commerce provides the largest volume of employment as we have seen while examining the occupational pattern according to the Census tables. Even in the highly advanced countries, this sphere of employment is quantitatively more massive than direct industrial employment. We find that recently in the U. S.A., the number of persons employed as salary and wage earners in the manufacturing industries stood at 15.71 millions against 36.30 millions in the rest of the non-agricultural occupations. It is a significant figure even though it may not correspond exactly to our category of "Commerce". The study group of the Planning Commission calculated that against 51.99 lakh jobs which would be created directly by the investments during the second plan period, the volume of employment generated indirectly in commerce would amount to 27.04 lakh or 52 per cent of the first. We believe that it may be possible to calculate the indirect employment values of the countable investments and employment by a converging method. We have already indicated one of these by pointing out the deficiency in the employment figures of certain Divisions in Bihar as compared to that of India. It may also be possible to calculate how, with the increase in national income, the scope for employment in small trades and servicing may grow. A survey of consumer servicing occupations side by side in some urban (and even rural) areas with differences in the level of income and other relevant parameters may be carried out and co-relations established. As a model, we are giving here a comparative calculation prepared by Shri S. R. Bose on the basis of the Census figures. This statement relates only to a few trades and the scope may be widened to cover more trades.

STATEMENT SHOWING THE RELATION BETWEEN THE LEVEL OF INCOME AND EMPLOYMENT IN SOME SERVICING OCCUPATIONS IN 1951.

Industries and services.	No. of families in rural and urban areas for every person engaged in the same area in the industry or service mentioned in the loft hand column.					
	rural.	urban.				
I	2	3				
I. Fishing	538 families	180 families.				
2. Tabacco Manufacture	621 ,,	50 ,,				
3. Wearing apparel and made-up toxtile goods	408 ,,	55 ,,				
4. Manufacture of bricks, tiles and other	1,022 occupied houses	114 occupied houses.				
structural clay products.	,					
5. Construction and maintenance of buildings	300 ,,	45 ,,				
6. Manufacture of furniture and fixtures	4,363 ,,	640 ,,				
7. Printing and allied industries	17,382 literate persons	804 literate persons.				
8. Sanitary works and services	1,351 families	70 families.				
9. Commerce	30 ,,	43 ,,				
10. Transport by road	513 ,,	25 ,,				
11. Money-lending, banking and other financial business.	1,972 ,,	344 ,,				
12. Medical and other services	455 ,,	44 ,,				
13. Educational services	537 persons aged 5—14	51 persons aged 5-14				
	years.	years.				
14. Domestic services	143 families	14 families.				
15. Laundry work	311 ,,	84 ,,				
16. Barber	251 ,,	109 ,,				
17. Religious, charitable and welfare services	491 ,,	77 ,,				

On the basis of the data in the final report of the National Income Committee regarding national income in 1950-51, Shri S. R. Bose calculated that per capita annual income of the rural population was Rs. 195 and of the urban population Rs. 335 in Bihar.

31. PROJECTION OF POPULATION AND EMPLOYMENT.

We have considered the condition and the prospects of employment in greater details in the relevant chapters. A forceast of employment prespects is a necessary concomitant of a projection of the growth of our propulation and the labour force. In the general survey in this chapter, the broad outline may be indicated.

31.1. The overall situation and prospect of employment.—In view of so many divergent estimates about the growth of the population, it is difficult to make any widely acceptable forecast of the employment position in the years to come. The broad picture in Bihar is that with regard to the contion of employment opportunities during the Second Five-Year Pian period, it has been estimated that during the construction phases, the plan will generate jobs equivalent to 158.4 lakh man-months. This would mean employment to nearly 204 thousand persons continuously during the plan period on construction activities. In addition, they have estimated employment for about 33 thousand persons in the continuing schemes. As a result of revision of targets for primary education, additional jobs for about 20.5 thousand teachers are expected to be created in the 4th and 5th years of the plan. Thus, total employment to be generated in Bihar under the State plan, during the plan period, would be about 3.5 lacs.

From the information collected under the Employment Market Information Programme during a six menthly, priod, the additional employment available in Bihar State in Central establishments, namely, Railvays, Central Government offices and Central quasi-Government establishments was nearly 7.8 thousand. Assuming this as arising out of the Plan, the additional employment with the Central Government establishments in Bihar State may be about 73 thousand during the entire second plan period.

Estimate of the employment likely to be created due to the private sector investment in the State is not available. The total private sector investment envisaged by the Planning Commission was Rs 2,306 erers for India as against the revised public sector plans of Rs. 4,600 erores. In other words, the investment in the private sector was estimated to be half of the investment in the public sector. It is assumed that this ratio of private sector investment may not occur in Bihar. Taking a conservative view of the matter, we may assume that the ratio of private investment to public investment in the large organised industries in Bihar may be 1:4. The employment that may thus be generated through private investment may be nearly I lakh.

Thus it is expected that during the second plan a total of 5.3 lakh of accountable jobs would be generated. Then, there is also the indirect or tertiary employment, over and above the countable jobs, that has to be taken into account.

On the basis of National Sample Survey, the Flaming Commission has assumed this indirect employment to be 0.52 per cent of the countable jobs. Therefore, over and above the direct countable jobs measibled in the preceding paragraphs, the indirect employment in Bihar during the plan period may be of the order of 2.7 lacs. The total additional employment in Bihar both direct and indirect would thus come to be about 8 lath.

Thus, it will be seen that the total employment opportunities likely to be created in Bihar in the Second Five-Year Plan may not even meet the needs of the new additions to the labour force in the State during the same period which may be

about 15.8 lakh. We have, for this very reason, made elaborate recommendations in the chapter on the Primary or Basic Sector to cope with this residual labour force.

- 31.2. Prospects in the primary or basic sector.—Contrary to the view held generally, the Committee has urged that if more intensive programme is adopted for the exploitation of the natural resources by means of intensive farming, a more active silvicultural policy, soil conservation measures, fishery development and labour intensive projects for the improvement of geography, an appreciable volume of employment would be created in the rural areas. Employment in mining may increase to some extent. But it is more likely that in view of mechanisation, the increase would be registered more in the processing of minerals than in mining itself.
- 31.3. Employment in the secondary sector.—We have reasons to believe that very important nodal points for economic growth and bases for a large number of multiplier effects would be created by the development of the processing of coal, the setting up of a refinery at Barauni and the expansion of other metallurgical, chemical and heavy engineering industries. But we also feel that unless special measures are adopted to encourage and establish the ancillary and derived industries and enterprises, the multiplier values of the nodal points would not be realised. It is for this reason that, irrespective of any ideological considerations, we are recommending that the State should step in either alone or in partnership with private enterprise to start new medium and small industries wherever private enterprise fails to make response.
- 31.4. Employment in transportation services.—Every economic growth depends on and creates scope for expanding transportation services and we expect a large increase in employment in the business of transportation. We have examined the subject in greater detail in the proper place.
- 31.5. Employment in consumer goods industries and consumer servicing or commerce.—We have noted the comparatively low figure of employment in Bihar in the Census Division 2 which includes industries concerned with the processing of food-stuffs, textiles leather and their products; and D. ision 4 embracing various other manufactures. In fact, a comparison of the figures in every Division of the non-agricultural activities and occupations of Bihar with those of India brings out the scope for further expannin Bihar even though we know that the all-India figures of the industrial occupions by themselves can hardly be regarded as norms. However, bearing in mind the tla that Bihar's population is occupiable of that of India, a comparison of the we have already given in Section 22 of this chapter is very significant. These parisons become all the store revealing when we go into the details of the subdivisions of each Division.

32. Inter-State Emigration from Pihar in Relation to Employment.

- 32.1 Its importance.—We are giving here an account of the emigration, mainly temporary, from Bihar to the other states as one of the valuable means of providing employment as it is an overall question which cannot be fitted into any of the sectors under which we have examined the subject of employment in relation to the growth of population. Its importance is clearly brought out by the fact that the volume of the emigrant population is almost equal to that of the entire active population of the State in the non-agricultural sector.
- 32.2. Overseas emigration is not important now.—Not much is heard these days of the scope for emigration from India to the countries beyond the seas. But there was a steady stream of emigrants going out of India from the second quarter of the last century in the days of indentured labour to various parts of Africa, to Jamaica and Trinidad, to British Guianea, to the Fiji Islands, to Mauritus and to Malaya. Records

in the Patna Collectorate show of emigrants going also to Australia in thirties of the last century from Bihar. The emigrants also went to the other European colonies. In all these streams of emigration, Bihar had a good share. Before the se aration of Burma, Bihar sent out a regular stream of emigrants there who usually came back after a year or two. One of the reasons for which the stream of international emigration has slowed down or stopped is that, even apart from racial factors, as in South Africa, most of the vacant spaces have got filled up. We are not, therefore, examining overseas emigration as a means of the employment of our population even though the question may not be ruled out completely. But Bihar plays the leading role in inter-state migration within India and it has got a very high employment value which deserves examination.

32.3 Inter-state emigration from Bihar in relation to employment.—The economic growth of a country necessarily stimulates the mobility of population and a demographic integration. Although the mass of the population of Bihar is considered to be stay-at-home, this State sends out a larger number of emigrants, mostly seasonal or temporary, to other states than any other state in India. And in spite of the growth of mining and heavy industries in the plateau region and the increasing number of immigrants coming to Bihar, the net balance is in favour of a very large margin of emigration from this State. According to the Census of 1951 the immigrant population within the State numbered 5.62 lakh and the emigrants from Bihar to the other states numbered 15.73 lakh. We do not know what percentage of these emigrants consisted of inactive women and children as a certain percentage of them go out and stay out with their bread-winners. But we have reasons to believe that the actual number of persons which is provided with scope for being economically active outside the State is much larger than the number given by the Census of 1951. This is because by the time in March that the Census figures were finalised most of the seasonal emigrants who go out in connection with earth work to Assam or for harvesting operation to Bengal and Assam would have already come back. This means that their number during the peak period of seasonal work outside the State must have been much above 15.73 lakh as returned in March, 1951. The extent of the relief to our economy from the load and strain of unemployment by this factor can be appreciated if we recall that the number of the emigrants may be equal to or in excess of the entire self-supporting population of 16.57 lak in the non-agricultural sector. In 1951, the emigrants formed 3.8 per cent of the natural population of the State. It may be noted that this percentage has come down from 4.7 in the Census of 1921.

32.4. Me sures for sustaining the stream of emigration or even encouraging it.—The extent of relief brought to our economy by the emigration of such a large number of persons calls for a careful consideration of the measures necessary for sustaining or even encouraging it. Although there is a small number among the emigrants who are small business enterprisers or educated persons the class consists prodominantly of unskilled or semi-skilled workers and small self-employed. One special feature of the emigration is that the emigrants follow certain beaton tracks and go mostly to West Bengal, Assam and Uttar Pradesh. It is guessed that one of the reasons for the decline in emigration since 1921 has been the separation of Burma. A very large number of emigrants used to go to the towns and even interior places in Burma.

The emigrants are a source of an appreciable amount of income to the railways as most of them go out to and return from distant places on average once a year. Formerly the railways had a system of a reduced fare for what was known as 'coolie' passenger traffic to Assam and Bengal and specially printed tickets were available for them. It may or may not be possible to revive the system but there are strong reasons for the Government taking serious steps for sustaining the stream of emigration and even encouraging it and opening up new channels. We believe that

unless artificial obstacles are created the industrialisation of the belt between Asansol and Calcutta would open up appreciable avenues for the employment of unskilled and semi-skilled workers and small traders from Bihar in these areas. We also feel that the Government may adopt active measures to publicise the openings for employment in these areas, in the Andamans, in Madhya Pradesh and in the developing areas of Dandakaranya and even to the other areas of Assam which are being newly opened. If labour contractors were the create beaton tracks once for the emigrants to these areas the enterprising emigrants would not require further guidance or inducements.

- 32.5. Establishment of a cell, to study and advise on problems relating to emigration.—We consider that emigration has an important bearing on employment in the State and therefore we recommend that the Government may establish a cell in the Department of Labour and Employment charged with the responsibility for
 - (i) continuously studying the trend of emigration;
 - (ii) being on the look out for any new avenues for the employment of the workers outside the State;
 - (iii) examining the ways and means for encouraging emigration to new areas like the Andamans, Madhya Pradesh, Dandakaranya and areas in Assam other than those with which our rural populations are already familiar;
 - (iv) keeping a watch on any artificial impediments to the flow of emigration which might crop up and bringing them to the notic, of the Government;
 - (v) devising methods of publicising cheaply through the Development Block agencies the opening for employment outside the State. (This work will have to be done very carefully and according to very reliable data to avoid raising false hopes and fruitless journeys by those looking for jobs); and
 - (vi) finding means for facilitating the work of the contractors who take out labourers in teams from Bihar to other states.
 - 33. THE MATCHING OF AGGRIGATI EMPLOYMENT TO AGGREGATE LABOUR FORCE OF THE ECONOMY.

The aggregate and growing labour force on the one side and aggregate employment on the other constitute the two sides of the scale or equation of the economy which we have been seeking to balance. Throughout this Report, we have explored and presented all possible avenues for productive and gainful employment. Finding the normal channels for full employment at a high level of productivity to be limited on account of the deficiency of capital resources we have sought to put into the employment side of the scale the counterweight of relief employment, mass employment and marginal self-employment as transitional measures in order to equilibrate or balance aggregate employment with the aggregate work force. But in spite of all these make-shift measures the existing and the dynamic demographic pressure is so great that the balance continues to tilt against a satisfactory level of employment. It is necessary, therefore, to bring into the equation the final counterweight of a deliberate check on the growth of population or a guided or controlled demographic trend by means of family planning or prudential maternity.

33.1. Special urgency of a policy of a guided growth of population in our underdeveloped economy.—We have noted how the first phases of the modernisation of the economy and society reduce death rate without bringing into existence a corresponding prudential check on the birth rate. In the countries with large unused resources the

growth of population may not be a problem and some of them spend a lot of public funds to assist immigrants. In another case the Soviet statesmen and economists may not fear the growth of population in view of their vast unutilised resources and the scope for continuous technological advance. But in India we are face to face with the Malthusian principle of an imbalance between the growth of population and food supply without any saving grace of a surplus of industrial production to enable us to buy food from abroad. Secondly, we have referred to the remarks in a recent study (1959) by the authorities of the Special Fund of the United Nations Organisation for aiding the development of the under-developed countries. It is stated that the annual increase in the national income of these countries is only 3 per cent and population increase is at the rate of 2 per cent. The result is that only 1 per cent of the current production is available for investment for economic growth. Technology is not magic, and the higher the technology, the larger is the amount of capital required for giving a physical embodiment to technology. Taking the high capital intensity of the heavy metallurgical, engineering and chemical industries and of the overhead services of transportation and power along with the less capital intensive smaller industries it is held that the capital-output rate is 4 to 1 in industry. It is 6 to 1 in agriculture if the cost of transforming virgin land or renovating ruined land is taken into account.

It is, therefore, clear that unless the rapid growth of consumption in India is checked by limiting the growth of population, the prospects of a satisfactory rate of economic growth would be very dim.

- 34. Demographic trends before the industrial revolution. For thousands of years down to the middle of the eighteenth contury the broad features of the growth of population in the world or in any region were the following-
 - (1) An overall race between the biological maximum of birth rate and an equally high death rate due to what Malthus called positive checks in forms of epidemic and ondemic diseases, famines and wars. There are even instances of ontire races and civilisations having been wiped out a part from wars. The builders of the Mayan monatable in Central America or of the Angkor Vat temples of Combodia were perhaps effaced by malaria. Hence, world population was sto ionary right down to about 1750.
 - (2) The high death rate and short span of life were due to oad nie of epidemic diseases, lack of knowledge and habits of sanitation and want of nutritious food, small-pox, typhus, diphtheria, plague, cholera, dysent ry and malaria killed off large numbers regularly or periodically. Infant mortality was high. Sometimes, entire tribes and racial units were liped out. Therefore, unlike the present anxiety over rapid growth, the main concern of communities was about the survival of the tribe or the racial unit itself and the social codes encouraged high birth rate because death rate could not be controlled.
 - (3) As I fe was dominated by the conditions imposed by nature, any strong trend of survival rate was neutralised by occasional famines owing to the failure of the games or fish to turn up along the expected migratory track, or to failure of crop later on among settled communities.
 - (4) History also brings out that advances in technology and favourable geographical conditions increased the resources for sustenance and led to the growth of population up to this level. In the pre-Neolithic age every improvement in the implements of hunting increased the ceiling up to which population

could grow. The development of Neolithic agriculture, and then of commerce in the favoured regions of the world, led to the multiplication of settled communities or urban societies and of literate cultures.

- (5) We come across numerous epochs of regional overgrowth of population leading to execute, migrations, conquests or mass suicide of entire racial groups. Such were the causes of the expansion of the Aryans, the Finns, u + 5 ms, the Huns, the Arabs, the Teutonic races, the Northmen, the Mongods the Turks, the Chinese, and so on. Thus wars restored the final balanc) when disease and famine failed to achieve it. One out of the numerous instances of racial suicides may be given here in what happened to the Contain and the Teutones in 101 and 102 B.C. They had been pushed south, and by the more powerful German tribes and begged of Rome for land to settle in. But barred by the Roman legions, they gave battle and were defected at Aquae Sextae (192 B.C.) and Vercellae (101 B.C.). Plutarch gives a grassome account in the life of Marius of how the rest of the nations consisting of flecing men and the women and children in camps behind their bullock-eart barricades committed mass suicide. Such instances of mass suicide and even more of mass massacres are only too common history.
- (6) Advance in technology, which had been fitful and vere created by chance discoveries and inventions before, say 1750 became continuous, cumulative and scientific thereafter. Hence continuous economic growth has led to sustained economic progress and sustained growth of world population. Here is a statement of the growth of the world population as a result

Year.			1			World Population.
1750		• •			<u> </u>	About 73 eroros.
1800	• •	• •				About 90 crores.
1850	••	• • • •	153			About 117 crores.
1900	••	••		स्त्रमेन नप	1	About 161 crores.
1950	••	• •	• •			About 239 crores.
1955	••	••	••	••	• •	About 269.5 crores.
1959	••	• •	. •		• •	Over 280 crores.

35. Guided or controlled growth of population.—In spite of and also as a result of the continuous operation of the strong positive checks the idea of conscious efforts to shape the growth of population is as old as history. Such a control of population may arise out of the efforts of a community through social codes or laws or may be the result of individual attitude. Secondly the guidance may aim at promoting the growth of population or at limiting the growth.

We have just seen the precariousness of the stream of life caused by the strong operation of the positive checks in spite of nature's insurance policy of a high birth rate. Hence all ancient institutes and customs generally sought to reinforce nature's insurance scheme and encouraged Lirths. Even some of the wars among primitive preagricultural communities were conducted not for capturing slaves but for adopting them in the tribe for replacing losses caused by any of the numerous positive causes. This was the primitive substitute for our modern device of federation or merger for securing strength by unity. Anxiety about the numerical strength of the state has been quite common throughout history. Spartan war widows were required by the state to entertain their slaves to make good the casualties of wars. Australia to-day

spends large sums of money to attract and settle white immigrants. On the other hand, one of the causes of the docline of Rome is believed to have been the decline in the population of the Metropolis on account of the selfish attitude of Roman women against bearing children after the second century B. C.

But measures for checking the growth of population even before the modern age have not been absent. Just as polygamy was one of the socially approved measures for increasing numbers, polyandry was introduced among many communities for stabilising the growth of population and maintaining a balance between number and resources. Tibet is an example of a country which succeeded in stabilising its population for centuries by the enforced celibacy of a large number of women in the numbers.

36. Growth of the awareness of a population policy in India.—The recent efforts of a decade among the densely populated but economically under-developed countries of the world for a forced economic growth have brought to the fore-front the question of guiding the growth of population. The newly created independent states are not only beset with the problem of mass poverty but also face the mass attitude of impatience against this poverty. This attitude is due to education and democratic way of thinking. It is one of the most urgent problems facing our country that the efforts for economic progress are not swamped by domographic pressure.

The question of the growth of population in relation to food supply came in for discussion as arly as 1880 by the Famine Commission. But the conditions were such that it had only an academic interest at that time. We were still surplus in food supply to the extent of about five million tons. Railways and canals were making rapid progress, and the problem of famine relief was merely an administrative and commercial one of pooling and distributing food resources. Next, right down to 1920, our population was stationary. Moanwhile the integration of Burma with the Indian Empire and its economy veiled the situation of increasing internal consumption of Indian foodgrains even when in the quinquennium 1921—25, India minus Burma for calculation purposes, ceased to be a net exporter of foodgrains.

The thirties of the present century saw the consus figures of 1931 revealing the new trend of population. The fact of India having ceased to be an exporter of foodgrains and becoming an importer was also revealed. Some stray voices in favour of birth control were raised but no urgency was felt on the subject.

The Bengal Famine Commission Report, 1945 (Final Report, Part II, Chapter I), reporting on the tragic Bengal famine of 1943, devoted considerable attention to the problem of balance between population and food supply and referred to the question of family limitation. But the general attitude of the Commission was still one of the preceding age. It is remarkable that in response to the enquiries made by the Commission from the provincial Governments, Bihar alone expressed positive anxiety over the growing pressure of population. But there was a general view that the times were not ripe for raising the question of family limitation.

37. The emergence of a population policy in free India.—We then find that as the orisis in food supply continued to recur year after year from 1946, and when India secured her freedom, the new rulers and administrators were able to consider the subject of control of growth of population without the fear of being misunderstood, which, perhaps, prevented the British rulers from thinking drastically on the subject. The data available from the experiences of the administration of food supply and other sources continued to provide materials which led to the crystallisation of the attitude of the Central Government. As a result, the Planning Commission in the first plan report noted that "the recent increase in the population of India and the

pressure exercised on the limited resources of the country have brought to the fore-front the urgency of the problem of family planning and population control". A sum of Rs. 65 lakh was, therefore, allotted in the Plan for a family planning programme and its framework was laid down for implementation by the Ministry of Health. Then the publication of Census of India, 1951 Report, Part I-A in 1953 presented a well-reasoned analysis with statistical details on the subject of the growth of population in relation to the growth of food shortage in Chapter IV. The subject of improvident motherhood was analysed in Chapter VC.

- 38. The present family planning programme.—A sum of Rs. 497 lakh has been provided for the family planning programme during the Second Plan period. A Central Family Planning Board and corresponding ones in the states have been set up. A target of 2,500 family planning clinics, 2,000 in rural and 500 in urban areas has been laid down. But by March, 1958, only 300 clinics had been opened. The objects of the programme have been formulated to consist of
 - (1) collection of information and data on the reasons for the rapid growth of population.
 - (2) research for suitable methods of family planning and their dissemination.
 - (3) family planning advice to be made an integral part of all hospitals and health agencies.
 - (4) training, demonstrations and experiments in family planning.
- 39. Observations and recommendations of the Committee.—We have not conducted any systematic investigations on the subject of family planning beyond noting the attitude of the people on the subject in course of our investigations. We have also collected useful data on population in our samples which are being processed. We are placing our observations and recommendations below:
 - (1) We are very much impressed by the statements in section 9 of this Chapter showing a rapid fall in the birth rate in recent years. While investigation into factors leading to the rapid growth of population is on the programme of the Family Planning Board, we recommend to this Board that investigations into the factors accounting for the fall in the birth rate in recent years may provide useful clues for reinforcing this trend.
 - (2) Our observations show that the women of the poorer sections of the rural areas, who are not considered to be appreciative of family planning measures, are quite responsive to the idea if it is presented in a convincing way. The scheme of training of rural medical officers should, therefore, be intensified.
 - (3) We recommend that the popularisation of family planning and the programme of training and opening clinics should be strongly supported by the Ministry of Labour and Employment.
 - (4) We recommend the opening of a regional training centre in Bihar for which other states like Kerala, Uttar Pradesh, Madhya Pradesh, Madras and the Punjab had already been given Central grants before 1959.

CHAPTER VII.

Unemployment and Urban Population: The Urban Unemployment Survey in Bihar, 1954.

UNEMPLOYMENT AND URBAN POPULATION.

1. General features of the Urban areas.—In the Census of 1951, we find a sixfold classification of towns as given below:

Class.		Number of towns in Bihar.	Total population of each class.
I. Population 1,00,000 lakh and over	••	5	856,720
II, Population 50,000 to 1,00,000	••	6	424,396
III. Population 20,000 to 50,000		20	605,458
IV. Population 10,000 to 20,000		3 8	526,152
V. Population 5,000 to 10,000	٠.	33	249,602
VI. Population under 5,000	••	11	42,403
		Total	27,04,731

There are certain common tests laid down by the Census authorities for distinguishing towns from villages. But there are other features which have differed from state to state. Some of them are important from our point of view and will be examined. The universal features are that the area is to have a municipality or is to be a Notified Area or is to have been formally declared as a town by Government. In some states, it was to have a population of not less than 5,000. But in Bihar, the class VI towns have a population strength below this level. Some states specified the condition of a minimum density of 1,000 inhabitants per square mile. But we know that in some rural areas in North Bihar, this density is exceeded even in some villages. In some states it was very realistically laid down that the area is to be a centre of trade, distribution or administration, and that, at least three-fourths of the adult male population should be engaged in non-agricultural pursuits. Some states applied the test of the availability of urban amenities.

2. The small urban popu'ation of Bihar.—From the point of view of employment, these tests require further examination. However, we note here first that even according to all these liberal tests, the ratio of urban population in Bihar according to the Census of 1951 was 1 to 14 against 1 to 2 of Bombay, 1 to 3 of West Bengal, I to 4 of the Punjab and Madras and 1 to 6 of Uttar Pradesh and Madhya Pradesh. Broadly, the level of urbanisation may be regarded as a test of the extent to which an economy is diversified on the basis of industrialisation and of a shift of the active population from land to other occupations.

But that urbanisation in this sense does not mean that the urban population can be equated to the non-agricultural population is brought out in the following statement:—

TABLE 24.

STATEMENT SHOWING THE RATIO OF URBAN TO RURAL AND NON-AGRICULTURAL TO AGRICULTURAL POPULATION.

State	•			F	Proportion of urban to rural population.	agricultura i to agricultura i
1			 		2	3
Orissa				••	1:24	1:4
Assam	••	••	••	••	1:21	1:3
Bihar	• •	÷ 55	353	••	1:14	1:6
Madhya Pradesh	••			••	1:6	1:3
Uttar Pradesh	••				1:6	1:3
Madras	••			••	1:4	1:2
Punjab	••			••	1:4	1:1.8
West Bengal	••	144		• •	1:3	1:1.3
Bombay	••			•*•	1:2	1:1.6

A large proportion of even the urban population, 25.2 per cent of the total, is engaged in agriculture. This is mainly due to the lack of the growth of the employment generating categories of large, medium, and small industries in Bihar in spite of the existence of important primary and basic industries within the State. As this subject has been examined in detail and forms the basis of a large number of our recommendations, no further examination of this aspect of our economy is necessary here. The nature and causes of urbanisation in their bearing on employment have, however, got to be brought out in this place.

3. The trend of urbanisation in the previous decades.—The trend of urbanisation in Bihar during the last five decades is illustrated in the table which follows. In general it has followed the growth in the aggregate population of the State. But in the last two decades, urbanisation as a distinct trend is clearly noticeable by the differential, though small, in the growth of the urban population. The low ratio of our urban to the rural population is explained mainly by the fact that it stood at a low level as compared to that of the other provinces before 1921—31 and that the trend of urbanisation during the last two decades has not been so strong as to have rectified the inherited disparity. The details of the reason of our low urban population would become clear when we examine the relationship between urbanisation and the pattern of livelihood. In this connection the comparative statements of the percentage of the working population in the ten divisions of the Census figures of the non-agricultural workers of India and of Bihar may also be referred to. It should, however, be

remembered that these figures include the rural non-agricultural workers as well who form 8.9 per cent of the rural working population.

TABLE 25(A).

STATEMENT SHOWING THE GROWTH OF URBAN POPULATION IN BIHAR IN SOME TYPICAL TOWNS FROM 1901 to 1951.

(a) Examples of growth mainly for administrative and Commercial reasons.

				Population in thousand in the year-							
	Name of tow	n.	_	1901.	1911.	1921.	1931.	1941.	1951.		
	1			2	3	4	5	6	7		
Patna	••	••	••	135	136	120	160	196	283		
Jaya	••	••	••	71	50	68	88	105	13		
Bhagalpur	••	• •	••	76	74	69	84	93	1		
Ranchi	••	••		26	33	44	57	63	1		
Muzaffarpur	••	• •	9	46	44	33	43	54			
- Darbhanga	••	• •	• •	66,	63	54	61	69	;		
Bihar	••	••		45	35	37	47	5 5	6		
Barh	••	••	••	12	9	8	10	11	2		

TABLE 25(B).

STATEMENT SHOWING THE GROWTH OF URBAN POPULATION IN BIHAR IN SOME TYPICAL TOWNS FROM 1901 TO 1951.

(b) Examples of growth mainly due to mining and industrial activities.

	Population in thousand in the year—								
Nan	ae of town	•	-	1901.	1911.	1921.	1931.	1941.	1951.
	1			2	3	4	5	6	7
amshedpur		••	••	••	6	57	92	165	21
Jamalpur	•••	•••	••	14	21	25	30	39	4
Katihar	••			10	10	15	16	26	4
Dhanbad	• • •	• •		••	::	13	16	21	3 2
iridih		• •	• •	9	11	19	21	$\frac{25}{8}$	2
Dehri	• •	• •	• •	••	• •	• •	• •	10	í
Kargali	• •	• •	• •	••	• •	• •	• •		i
Sindri	• •	• •	• •	••	• •	• •	••		
Mosabani	• •	• •	• •	••	••	• •	• •	6	
Noamundi	• •	• •	• •	••	• •	• •	••	_	
Gua	• •	• •	• •	• •	• •	••	••	••	

4. Re'ationship between urbanisation and the pattern of livelihood.—All economic activities arising out of the utilisation of land (and natural resources) are spread out over wide areas. On the other hand, commerce and large-scale organised industries bring about a concentration of population. Transport systems are, by their very nature, octopoid and integrate the activities of the primary sector diffused over space, with the localised activities of the secondary industrial sector; link different kinds of industrial activities among themselves and also link the industries with the areas producing raw materials and with the consuming markets. All these activities give rise to commerce. In this way, commerce, industry and transportation tend to draw together or concentrate population and create urban areas though transport may also allow a diffusion. The centres of administration, along with the places of pilgrimage have, however, been the original urban localities; and we shall see how even now urbanisation in our under-developed economy has been largely due to the growth of administrative activities. Finally, all these factors of urbanisation tend to concentrate not only population but also spending power. This leads to further commercial activities in retailing and rendering vocational and other services like those of the laundry man, the barber, and so on. In this way we find that the factors of urbanisation or aggregation of population tend to stimulate each other reciprocally and cumulatively because all of them tend to aggregate income and demand for goods and services. The fact that, from the point of view of employment, commerce is quantitatively more important than industry, is due to the large proportion of the national income, ranging from 95 to 70 per cent of the net national income which goes into consumer expenditure. This volume of consumer expenditure gives rise to the commercial activities of a large number of people retailing consumer goods and servicing consumers in various ways. The truth of this generalisation is brought out when we compare the growth of the population of the non-industrial towns with that of the industrial towns and also note that even in the industrial towns the number of the population engaged in the non-industrial occupations is generally larger than that of the industrial workers. The percentage of the actual steel workers in the total population of Jamshedpur is an example.

In applying generalisations noted here and drawing conclusions from them, a few qualifying considerations are necessary. This categorisation may become unreal unless looked at in the appropriate context and as a model. For example, we have to remember how, while the differentiation of employment generating activities from the employment absorbing ones is useful for working out employment multiplier values, it may obscure the fact that it is the agg egate demand of the consumers which ultimately generates all employments in the entire economy, at first the services of the middlemen, and then for those of the others.

We have also to note that ultimately the roots of eommerce, transportation and eonsumer servicing lay directly or indirectly in the primary and the secondary sectors. It may also be noted that agriculture can generate further employment only to the extent to which it produces marketable surplus of foodgrains and commercial crops. As we shall see presently, we expect that the Census of 1961 will reveal a larger number of localities acquiring the status of towns on account of the development of primary and secondary industries even though the growth of a still larger volume of urban population may be due to its multiplier effects on commerce, transportation and consumer servicing.

5. Certain reservations in interpreting the economic significance of the urban population.—The rate of urbanisation of any area in industrial and mining regions may not be a true indicator of industrialisation and the growth of avenues for employment. Although the process of the growth of a permanent resident population in industrial and mining towns is visible, two other factors have got to be taken into account for estimating the employment potentials created by their growth. Firstly, the major part

of the population of even a thorough going industrial area is not industrial by occupation, as just noted, and is accounted for by other occupations created by industrial production and also by the spending power generated. On the other hand, much of the actual industrial population may be coming daily to work from the sorrounding areas. Moreover, the mining population, by the very nature of its activities, may be spread over wide areas instead of being concentrated in any small locality. It is for this reason that many of the decentralised industrial centres like Tiles and Marhowrah have not attained the status of even a class VI town. Again Noamundi and Gua owe their status of towns, acquired recently, rather to the occupations generated by iron-ore mining activities than on account of the actual mining population itself.

For yet another reason the formal categorisation of rural and urban areas is not a correct indicator of the level of urbanisation. We know that a very large number of places classed as rural with a population between 2,000 and 5,000 are very much more urban in character as being the distributing markets for consumer goods or places for the collection of surplus foodgrains and other cash crops. But against this feature we have got to take note of the fact that 25.2 per cent of even the formally calculated urban population was engaged in agriculture. Finally, in spite of the large number of villages with appreciable commercial activities less than 9 per cent of the rural population was returned as engaged in non-agricultural occupations.

6. Projection of urbanisation in the present and the next decade.—The table given in section 3 of this Chapter shows the growth of urbanisation in this State. It has been estimated by experts that the growth of urban population in the whole of India during the present decade is likely to be at the rate of 4 per cent of the population per annum. The urban population of the present area of Bihar was a little over 26 lakh in 1951, after the transfer of parts of Manbhum and Purnea with an urban population of about one lakh. If the average annual rate of the growth in the urban population is assumed to be 4 per cent, the urban population of the State by 1961 would be 36.4 lakh. If the increase is assumed to be 4 per cent of every preceding year, the total would come to the much higher figure of 38.49 lakh as calculated below:—

		विद्यार्ग	व मयन	Increase during the
Year.			Population (in lakh).	year in lakh at 4 per cent.
1951	••		26.00	1.04
1952	• •	••	27.04	1.08
1953		••	28.12	1.12
1954	• •	••	29.24	1.17
1955	• •	••	30.41	1.22
1956	••		31.63	1.27
1957	• •	••	32.90	1.32
1958	• •		34.22	1.37
1959	••	••	35.59	1.42
1960	••		37.01	1.48
1961	,	••	38.19	• •

This forecast of 4 per cent annual increase takes into consideration both the factors of the natural increase of the resident population as well as emigration from other

places. It, however, does not include the third likely factor of the growth of new towns or of the admission of villages or market places whose population might increase owing to these two causes into the list of towns. We expect quite a number of new entrants in the list by 1961.

Experts have calculated that the execution of successive plans would tend to reduce the load of the population on land progressively as industrialisation and urbanisation are accelerated. An optimistic estimate is that by 1961, the all-India percentage of the population depending on agriculture would come down to 66.9 from 71.9 in 1951. We are not in a position to make any such forecast for the State of Bihar in view of the small proportion of the urban population in the base year (1951) itself and the force st of the annual increase of 1.8 per cent in the total population. We may, however, consider the main causes of the trend of urbanisation and how they would apply in our State.

- 7. The causes of urbanisation and of increase in its pace.—The factors operating to incre se the size of the urban population and to increase the pace of urbanisation are considered to be the following:—
 - (1) The natural growth of existing urban population.
- (2) Emigration of rural population to urban areas owing to a large number of causes which are being examined separately.
- (3) Increase in the number of places which acquire the status of towns as a result of increase in their population due to any or b th of th las to c uses.
- 8. Natural growth of the urban population.—The table in section 3 would show how the growth of urban population has gone hand in hand with the growth of the total population because the factors reducing death rate are likely to be more effective in the urban areas with their growing amenities of life and the larger per capita income of the population. Hence, the growth of our urban population has been broadly parallel to the general growth of the total population. We find that this growth of population, decade after decade, between 1881 and 1921 had been very slow (one decade even showing a decline) but it has been very high between 1921 and 1951. Between 1891 and 1921, the population of Bihar increased only by 3 per cent whereas in 1921-51 during the next three decades it increased by almost 40 per cent. The increase in the all-India population also was at about the same rate. But we find that a larger proportion of these decennial additions were born in or migrated to the towns in other states. In Bihar, land continued to bear the main burden of the demographic pressure and the growth of urbanisation was not able to absorb the increase in the total population to any appreciable extent even though the percentage rate of growth of the urban population was above that of the total population in most of the towns. We shall next examine the causes of the differentials in the growth of the urban population.
 - 9. Growth of the Urban Population as a Result of Migration to the Towns.
- 9.1. Concentration of activities, popu'ation and consumer expenditure in urban areas.—In section 4 of this Chapter we have examined causes of the concentration of population in urban areas. We have seen how administrative, industrial and commercial factors tend to attract and concentrate population in towns and how all these tend to concentrate consumer expenditure and give further stimulus to commerce and consumer servicing. The table given in section 3 brings out instances of some spectacular increase in urban population even without any growth of industries in the towns.

- 9.2. The attraction of the higher income earned in urban areas.—Although out of the 127.1 lakh of our self-supporting or gainfully occupied people 22.5 per cent are agricultural labourers, only a little over 6 per cent are employees in the correct sense of the term. Hence the overwhelming majority of the economically active population is self employed. But a close examination of the average income of the different livelihood subdivisions shows that the self-employing occupations are mostly residuary in character, providing livelihood for those who are not able to get a footing elsewhere. This is t ue not only of the heavily under-employed artisan classes but also of the majority of the cultivators. In the estimates made by Mr. S. R. Bose on the basis of the Final Report of the National Income Committee for the year 1950-51, we find clear evidence for the urge of an increasing number of persons to seek urban employment. It is seen that annual income per head in rural area was Rs. 195 as against Rs. 335 in towns in Bihar. The average per capita income, even taking the all-India average, which was much higher than in Bihar, from agriculture was Rs. 472 per annum which was hardly much higher than the income of Rs. 448 from domestic services and is certainly lower than the income of Class IV Government servants. As against this, the per head annual income in mining and factory establishments was estimated at Rs. 1,676, in railways and communications at Rs. 1,571 and in Government services at Rs. 1,103. Income in small enterprises was estimated at Rs. 791. The average income of the self-employed artisans is known to be lower than that of even an average cultivator. It is thus clear that the search for jobs is natural and quite justified owing to the decline of the relative attractiveness of self-employment in agriculture and small crafts. The growth of population itself is adding about 3 lakh of persons to the employable age-group annually. The new entrants find even the selfemploying spheres already over-croweded in a stagnant economy and are on the look out for jobs in the towns.
- 9.3. Risks of agricultural income and the desire for a stable source of income from jobs.—The wide variations in the outturn of farms is well known. Hence even the prosperous cultivator, realising the uncertainty of the farm income and the certainty of his cash liabilities, always looks for a job for some members of the family as an insurance measure.
- 9.4. Multiplication of wants and avenue for spending.—This tendency has been further intensified by the development of monetised economy and by the diversification of the pattern of consumption and spending creating a demand for income. Every decade sees new items of consumption and expenditure and its percolation into the pattern of consumption of the remotest villages. Today more varied kinds of food and drink, clothes, ready made garments, cosmetics, shoes, lanterns, electric torches and numerous other kinds of goods are readily available even in the rural townships and markets. There is a rising supply and demand of toys and of materials for the school-going children.
- 9.5. Growth of education and demand for jobs.—The growth of education is a major factor in transferring an increasing number of children and youngmen and also their guardians for education, and then for employment to the towns. Some time ago Mr. Alec Dickson remarked "It may sound strange to assert that the future of many newly emergent nations is menaced by education." His remark was meant to emphasise the need for effective employment policy. We consider the problem of education and employment in a separate chapter.
- 9.6. Greater amenities of life in the towns.—The increase in the relative attractiveness of urban life, the existence there of amenities not available in the villages, and the greater chances of getting jobs in the urban areas are powerful consideration which have attracted an increasing number of persons to look for jobs as wage or salary earners. Quite a number of literate young people, with their heightened sense of self-respect

are attracted to look for paid jobs to escape the conservative atmosphere in the villages where birth still counts a great deal in determining the status in the local society.

All these fauses have led to the growth of a labour force market, the magnitude and growth of which is reflected in the live registers of the Employment Exchanges even though not to the fullest extent. About three years ago it was estimated that the figures of the Exchanges account for only one-fourth of the actual volume of unemployment. Perhaps there is a trend for an increasing number of persons to get themselves registered and it is now estimated that 32 per cent of the labour force gets itself registered as already noted.

- 9.7. Other causes of migration to towns.—Among the other causes of the migration of people from the rural to the urban areas are the abolition of the zamindari system, the fear of the ceiling on land holding, insecurity in the rural areas, the desire to invest more on the education of the children, the tendency to part with the landed properties in the villages with a view to build or buy house properties in the towns, and the desire to bring up children near the sources of employment.
- 10. Increase in the number of towns.—The number of localities or villages which have developed newly as towns or have graduated to the status of towns has been fairly large during the last two decades. We expect both these classes of towns to appear more prominently in course of the Census of 1961. Looking at the past decades, we find two small new towns, Jamshedpur and Rajana'nd being recognised as such for the first time in 1911. In 1921, Lakhisarai, Royastai, Fortesganj and Jainagar formally graduated as towns, even though they had been important trade centres already for a very long time. In 1931, only Fatwa was admitted to the family of towns. The Consus of 1941 gives us a large list of new towns. Most of them were old centres of commerce and had registered a great increase in population in 1931 41. Such were Siwan, Teghra, Phulwaria (Monghyr), Jamui, Revelganj, Barbigha, Nasriganj, Sherghati, Mow (Darbhanga), Seraikalia and Manoharpur (Singhbhum). As compared to these, the towns which came into existence as a resul of mining or industrial developments were Jharia, Kargali, Baidkaro (Hazaribagh), Bermo, Mosabani, Noamundi and Dehri. The list of new towns in 1951 is much larger, but they are almost all merely commercial and administrative centres. Such are Gopalganj, Mirganj, Mahua, Sugauli, Barhi, Hussainabad (Palamau), Bajauli, Dalsingsarai, Warsaliganj, Kharagpur (Monghyr), Raxaul, Bagaha, Shikarpur, Kesaria, Mihijam, and Rajgir. Dumra (Muzaffarpur) and Luathaha (Champaran) may be regarded as towns by courtesy on account of their being civil stations. Chanpatia and Chakia too had grown up in 1941-51 mainly owing to commercial activities, since the sugar factories had been there from a long time before. Among the towns which came to exist on account of mining and industrial activities were Sindei, Gas and Mowbhandar. Ramgarh grow up as military station. Jhumri Tilaya too mag be regarded mainly as a commercial centre.
- 11. For cast of the trent in presen decade.—The Census of 1961 is likely to show a number of new towns though the growth in the size of the existing industrial, commercial and administrative towns is also likely to be more prominent. We my find Kodarma acquiring the status of a town. Barauni may take the first step in its growth as an industrial centre. Bokaro and a number of other places may become important industrial towns. It is, however, possible that quite a number of important industrial centres and satellite towns may not formally attain the size of a town in spite of their importance by themselves. Thus Gomia may continue to be outside the list of towns. Moreover, there is a general tendency non-for towns and townlets to grow up as comurbations and the small embryonic townless may not be included in the area of a town or counted as an independent any actifical centrain stage in the aggregation of population has been attained.

THE URBAN UNEMPLOYMENT SURVEY IN BIHAR, 1954.

- 12. Inadequacy of data on urban employment.—By 1953, a fair quantity of data had become available on rural unemployment conditions, but no materials concerning urban unemployment had been collected. At the same time, the unemployment figures on the live registers of the Employment Exchanges were mounting. In order to check these figures, the Planning Commission directed the National Sample Survey to conduct a sample survey of urban unemployment in 1953. A similar lack of urban unemployment data was filt in Bihar as well. Here, too, the need for a survey was realised by the Committee in view of the rising figures on the live registers of the Employment Exchanges and the general condition of employment in the urban areas. The Urban Unemployment Survey of 1953 by the N.S.S. covered only one town (Gaya) in Bihar and it was considered necessary to have a separate survey for this State in order to secure a wider coverage of different kinds of urban areas. Hence, the Committee arranged for a sample survey of urban unemployment in this State in 1954 through the Central Bureau of Economics and Statistics of Bihar. The survey was taken up in March and completed in July of the year 1954.
- 13. The concepts, procedure and design of the survey.—The concepts and terms of the survey followed those used by the N.S.S. and had been recommended by the These need not be explained separately as they would become in the succeeding pa agraphs summarising the results of the survey. The design of the survey was also the standard one already evolved. The sampling was done in two stages. Firstly, a number sample towns were dr wn. Next, in each sample town, samples of the families were drawn from the electoral rells of the Patna Municipal Corporation, a d from the assessment registers of holdings in the other remaining towns. The first stage of sampling by which 15 towns were drawn, sought to cover all the four administrative divisions and three out of the six classes of towns. Three towns, namely, Patna, Bhagalpur and Ranchi were drawn from the class I towns with a population of one lakh and over. There are only five such towns in Bihar and so, only Jamshedpur and Gaya were left out of it. Of the class II towns with a popula ion between 50 theusand and 1 lakh, 3 samples, namely, Muzaffarpur, Chapra and Arrah were taken. Finally, out of the class III towns with a population between 20 thou and and 5 thous and, 9 samples were drawn. These were Motihari, Madhubani, Jamalpur, Purnea, Deoghar, Hazaribagh, Purulia, Dhanbad and Giridih. Thus we find that the samples represent all the four administrative divisions of the State as well as the major classes of the towns according to the size of the population. The towns in the last three classes of the Census with pepulation below 20 thousand were considered to be more rural in features than urban and were not represented. The Committee, however, feels that these towns might be surveyed as a class by themselves in view of some very important and special features of their ewn.

The total population of these towns in 1951 was 9.9 lakh. The estimated number of families was 1,40,831. Out of these 4,716 sample families were surveyed. The sample population surveyed in these families consisted of 37,628 persons, made up of 19,315 males and 17,713 females. This showed the family size of 7.85 persons per family to be bigger than the average size of 6.1 persons per occupied house according to the Census Report.

14. The reference period of the survey.—This survey was like a snap-shot picture of the employment situation as it existed on the day of enquiry. It does not cover the entire year. In the N.S.S. investigations of 1953, the refer nce period had been 30 days preceding the date of enquiry. In our Rural Survey in the sampled villages in Bihar, our reference period covers a complete year for which weekly returns were collected. The special merit of the reference period of just a day lies in the simplicity in the collection of the data.

15. Age and sex composition of the employable labour force.—Taking those within the ages of 16 to 60 as the persons available for gainful work if they chose to work, we find that they numbered 10,884 males and 10,465 females, being 50.9 per cent and 49.1 per cent of each sex respectively or 57.7 per cent of the total sample population. The rest were children and boys and girls below 16 or old p sons above 60. (The corresponding percentage of the employable population in All-India Survey of 1953 was 55.85 though the age-group embraced 16 to 61.) We find this percentage in the sample survey to be quite close to that of the total population of the State in the age-group 15 to 59 which was 54.7 per cent of the entire population in 1951. These comparisons establish a satisfactory degree of the eliability of the data. We have, however, got no data to establish what percentage of this employable labour force was actually in the labour markets seeking employment. The N.S.S. worked it out by adding up the number of persons unemployed and partially employed to the number actually employed, and this appears to be a simple procedure.

16. The incidence of urban unemployment and under-employment.—The 4,716 sample families which were surveyed accounted for a sample population of 37,028 persons made up of 19,315 males and 17,713 females. The employable labour force between 16 and 60 years of age was 21,349 (10,884 males and 10,465 females). Out of the 4,716 families, as many as 1,663 or 35.2 per cent of the families surveyed were affected by unemployment or under-employment. The number of unemployed persons was 1,855 (1,672 males and 183 females) while the number of partially employed persons was 804 (767 males and 37 females). Thus the total number of affected persons was 2,659 in 1,663 families. It is calculated that 15.36 per cent of the employable males and 1.76 per cent of the females who were willing to work were wholly unemployed while 7.05 per cent of the employable males and 7.35 per cent of the females who were willing to work were partially unemployed.

We infer that the quest for jobs among women is not as yet very strong. The number of women anxious to work but not able to get jobs was 3.4 per cent, 1.4 per cent and .0 per cent respectively in Class I, Class II and Class III towns. Again, taking males and females and unemployed as well as under-employed in aggregate, we find that the incidence was 13.2 per cent in Class I, 12.9 per cent in Class III and 11.3 per cent in Class III towns.

The ratio of affected families to the total of the sample families varies greatly from town to town, but we have not got sufficient data to enable us to analyse the causes of these differences. Thus in Patna, 408 out of 1,133 surveyed families were affected, in Ranchi only 99 out of 443 families were affected, and in Bhagalpur 244 out of 50 families wer aff ted. In c ss II owns, 76 ami. s out of 301 in Muzaffarpur but as many as 176 out of 300 in Arrah were returned as affected. In class III towns, while unemployment in 94 families out of 185 families surveyed in one of the administrative towns may be ascribed to under-development, even in Jamalpur with all its openings for employment, the number of affected families was 153 out of 267. We might infer this to be due to the large reserve of the labour force in places where jobs can be had. But ther, in Dhanbad we find only 5 out of the 207 sample families to have been affected.

17. Educational and income categories.—The significance of income is that it shows not only the level of productivity and features of distribution of income, but also the

level of demand of the community which, in turn, determines its economic activity. The following table gives the summary:—

TABLE 26.

STATEMENT SHOWING THE DISTRIBUTION OF FAMILIES AND FAMILIES AFFECTED BY UNEMPLOYMENT BY INCOME GROUPS.

Avorage monthly	y incom	θ.		$P_{erc_{\Theta}}$	ntage of families	Percentage of the families affected by unemployment.
1					2	3
Group I—Rs. 50 or less		* *	••		25	39
Group II-Rs. 51 to 100	• •	• •			34	38
Group III-Rs.101 to 150	• •	• •		••	15	33
Group IV-Rs. 151 to 300		••	• •		17	33
Group V-Rs. 301 to 500	••	· , fin		23.	6.0	29.0

These details of income and educational qualification of the heads of the families have been summarised from Table V. We find that 59 per cent of the families had an income of Rs. 100 or less and 25 per cent had an income of Rs. 50 and less. If this family income is divided by number of persons per family which averaged 7.85, we see clearly what a large percentage of the population is below even the Primary Poverty line. Then in Table V we find some surprising features of poverty and unemployment. It is unexpected that there would be 2 families with Intermediate heads, 2 with Graduate heads and some others with engineering and legal qualifications in the lowest income group earning Rs. 50 or less per month per family. The number of family heads with these qualifications in the monthly income group of Rs. 50 to Rs. 100 is appreciably larger.

18. Income category in relation to unemployment.—Table XIII of the Report is significant and deserves attention from the practical viewpoint of framing policy and measures. It shows that of the total number accounted for in this table of unemployment (i.e. 622), 57.72 per cent belonged to the monthly income group of Rs. 50 and less, followed by the group of Rs. 51 to Rs. 100 accounting for 29.58 per cent of the incidence. So these two groups account for 87.30 per cent of the incidence. We also find from Table XIX that 91.29 per cent of the partially employed persons derived a monthly income of Rs. 50 or less and 6.59 per cent derived Rs. 51 to Rs. 100 monthly from their partial employment.

This feature of high unemployment of persons in the lowest income group brings out the value of stimulating even such occupational activities as do not yield any high income but do mean some relief and the utilisation of labour going to waste. From the point of view of welfare as well as of social contentment, this category of unemployment deserves serious consideration. For the rural areas, the activities of the Khadi and Gramodyog Organisation have been receiving varying degrees of attention which should be intensified. But a similar policy and measures are necessary for the relief of the lowest income group in the urban areas as well. They would clearly be of a little different type from the measures advocated for the rural areas.

The Statement which follows, brings out the incidence of unemployment among families with different levels of educational qualifications.

TABLE 27.

Educational qualit	ications of family.	Number of families in the sample.	Number of families affected.		
	1			2	3
Illiterate	• •	••		1,431	452
Literate	• •	438		1,087	345
Primary Educatio	n	••	••	576	233
Middle standard	••	••		623	272
Matriculation	• •	••	••	487	185
Intermediate	• •	••	••	112	48
Graduate	• •	· ()	Ö. ··	126	45
Post-Graduate				32	6
Tcaching	'			22	7
Engineering				19	'7
Agriculture	••	U. M. J. 1		3	Nil.
Veterinary	• •			2	1
Commerce	••			10	3
Legal		Jan Som	1	131	44
Medical	• •	दरप्रदेश	33	42	8
Others	••		••	13	7
ņ	TOTAL			4,716	1,663

19. General educational qualifications of the unemployed.—We find that 24.58 per cent of the unemployed and 57.71 per cent of the partially employed are illiterate or just literate. Another 43.67 per cent of the unemployed and 34.95 per cent of the partially employed have primary and middle english qualifications, while about 17 per cent of the unemployed and 4.35 per cent of the partially employed are matriculates.

The number of persons with higher qualifications among the partially employed is less than 1 per cent for each category, but of those wholly unemployed, 6.79 per cent are Intermediates, 5.01 per cent are Graduates, 0.75 per cent are Post-Graduates. Persons holding degrees in Commerce, Teaching, Law, etc., account for about 2 per cent of the unemployed.

20. Unemployment among persons with technical and vocational qualifications.—Table IX of the Report brings out very important implications about the working of the urban economy. Its contents, however, would become significant if examined with cross references to Tables IV and VIII giving occupational and educational decails. We find that out of 2,659 persons wholly or partially unemployed, while about 76 per cent are under-Matriculates or illiterates and about 13 per cent are Matriculates,

the number of affected persons with technical and vocational qualifications is quite large. There were 294 persons with technical qualifications and 2,367 with various kinds of vocational qualifications who were wholly or partially unemployed. They included persons in the liberal vocations of law and teaching as also a large number of persons in the trades of masons, cobblers, washermen, etc. It may be noted that the educational qualifications, already noted, cut across these technical qualifications which means that technical and vocational qualifications are not necessary concomitants of literary education.

One conclusion which stands out is that unless the economy as a whole expands and purchasing power-cum-productivity increases, mere imparting of technical and vocational education would not by itself solve the problem of unemployment. The latest figures of Employment Exchanges also corroborate the findings of the Urban Unemployment Survey about unemployment among persons with technical and vocational qualifications.

- 21. Age-group and unemployment.—The distribution of the unemployed persons in the different age-groups is presented in Table VII. This, too, is very significant for the purpose of framing policy and measures. Of the 1,855 wholly and 804 partially unemployed persons, 42.86 per cent and 22.64 per cent respectively belonged to the age-group 16-20; 28.58 per cent and 23.13 per cent respectively to age-group 21-25; 13.21 per cent and 22.39 per cent belonged to age-group 26-30. It is also significant that in the age-group 31-40, the incidence of partial unemployment is higher than of total unemployment. As further generalisations, we find that 71 per c n of the unemployed belonged to the age-group 16-25, while 80 per cent of the wholly and partially unemployed taken together were between 16 and 30 years of age. latest figures of the Employment Exchanges also corroborate these findings. These figures show the immense waste of the labour force of those in the prime of life when the young people should have been accumulating skill and experience in actual work and should have been settling down in life. The social dangers of this aspect of unemployment, apart from the economic loss, have been examined elsewhere. Further light on this aspect of unemployment is thrown by the analysis of the figures of the Employment Exchanges which enter and classify separately those seeking employment for the first time from those subjected to lapses from employment. It is found that most of the first entrants into the labour market belong to this lowest age-group.
- 22. Employment and livelihood categories.—Table IV combines occupational and educational categories in the survey. Looking only to the occupational classification, we find all the classes affected more or less by unemployment and under-employment. The survey covered 552 agricultural families of which 197 or 33 per cent of the families were affected by unemployment or under-employment. The next group severely affected was Commice in which 1,262 families had been surveyed and 26 per cent were affected. In transport, 591 families had been surveyed and 37 per cent were affected. Of the total of the sampled families, 27 per cent depended for their livelihood on commerce and this class, evidently self-employed in the main, showed the lowest incidence of unemployment. Of the 395 families returned as occupationless in this Table, 52 per cent were affected.
- 23. First entrants into the labour markst and lapses from employment.—The stagnant nat re of the economy as the main cause of unemployment is brought about clearly by the classification showing how 78 per cent of the wholly (1,452 persons) and 73 per cent of the partially (585 persons) unemployed persons were in the labour market for the first time, while 22 per cent of the unemployed (403 persons) and 27 per cent of the partially unemployed (219 persons) had lost the jobs they were holding. This aspect of the vast majority of the unemployed and under-employed being new entrants into the labour market should be examined with the presentation of the unemployment statistics according to the age-group in Tabe VII. Both these features

along with the incidence of unemployment among the vocationally qualified persons emphasise the stagnation of the economy and the low general level of consumption. We have just noted how the entry of the age of those registered in the Employment Exchanges shows that the first entrants into the labour market are naturally young persons.

- 24. Displacement from employment in relation to occupations.—We find in Table X, a statement showing the occupations in which the unemployed persons had been employed. For want of more data or information, it is difficult to interpret the figures. We find that 25.41 per cent of those who lost their jobs belonged to Health, Education and Public Administration class while 20.42 per cent belonged to commerce. It is difficult to explain specially the second one since commerce is the occupation which usually displaced persons resort to by way of self-employment.
- 25. Duration of unemployment.—From Table XIV we learn that 53.44 per cent of those who lost their jobs had been without employment for two years or less. A further examination shows that about 23 per cent had been displaced over a year earlier, while about 31 per cent had been displaced during the preceding one year. If the samples interpret the general trend correctly, then they confirm the belief which developed in 1953 that there had been an increase in unemployment in general since the preceding Census.
- 26. Conclusions and observations.—The Committee feels that while cur Urban survey of 954 has followed he design of the urban survey of N.S.S. of 1953, we do require data and information on a number of specific points which may be covered by future surveys. Some of the points on which the Committee felt handicapped for want of further information are mentioned below along with recommendations. The Committee has indicated its views at more than one place in the foregoing paragraphs how all the data go to show that the basic cause of unemployment is the stagnation of the entire economy and the resultant deficiency in the reciprocally sustained processes of production and consumption. But it had also been seen that, while the normal growth of the cooncmy would bring about the usual feature of expanding employment, the immediate problems of unemployment in specific sectors and among specific livelihood classes call for short-term measures. Hence surveys in specific towns and of specific classes may be taken up to supplement any general survey. It was from this point of view that the Committee, for example, undertook the investigation into the unemployment in Sahebganj on account of the decay of the Sabai grass industry there.

A very important feature of our urban economy is that a large number of families in the surrounding rural areas derive livelihood from a town and also contribute to the economic prosperity of the town. The N.S.S. Urban Survey of 1953 has given an analysis of the labour force in a town into two classes of these who were permanent residents and those who were migrants prepared to stay for or staying for more than a year. The latter category is distinguished from the temporary visitors. The Committee thinks that a third category of persons who are daily visitors from the rural areas would be useful.

While our survey reveals the existence of unemployment of the chronic type in urban areas as well, the thesis has got to be accepted on the basis of history and experience that the growth in the number and size of towns would be an effective means for relieving land from the pressure of redundant rural population. Even the most determined efforts to improve the amenities of rural life may not arrest the trend of urbanisation. The Committee, therefore thinks that the autonomous process of uncared for and unguided urbanisation may be guided into a canalised growth in which the economies of the surrounding areas are dovetailed into those of the urban activities. In other words, the Committee recommends schemes of guiding the

growth of urban-rural blocks for mutually sustained economic activities and for such short-term measures as may be necessary for increasing economic activity and employment.

In view of the fact that dependency among women in the towns is higher, avenues for creating employment opportunities for women according to local conditions may be explored. The Committee has made certain specific recommendations separately on the subject in another chapter.

The Committee has already commented on the combined effects of the incidence of unemployment and under-employment, as also of the large percentage of the urban population in the lowest income group. It is, therefore, necessary that such measures of employment which may not be yielding high income but are genuinely productive and afford some measure of relief to the unemployed persons and to the lowest income group may be worked out. The specific measures would differ from place to place and will have to be worked out separately according to local conditions. The Committee considers that, broadly the organisational and technical experiences of the Khadi and Village Industries activities may provide light and guidance for drawing up schemes for unemployment relief measures for the lowest incom groups in the towns subject to, of course, a greater diversity of programmes and detailed measures dovetailing them into the dominant local econotic features.

While the Committee has been laying much emphasis of a reciprocating rururban economic development, it was with considerable concern that it was learnt that the agricultural and horticultural activities in the rural belts around the developing industrial towns and mining settlements have been rather deteriorating instead of receiving the expected stimuli from urbanisation and concentration of purchasing power. This trend is attributed to the industrial employment in the towns and the attitude of the agriculturists and their families towards work and standard of living and the consequent inelasticity of demand for income. This development is serious enough to call for an investigation by the Department of Agriculture and the Community Development authorities.

- 27. Observations and recommendations—(1) he Committee brings to the notice of the Government the fact that during the last two decades the growth in the urban population of Bihar did not indicate any marke increase in industrialisation but is accounted for by the growth mainly in the employment absorbing occupations in commerce as compared to the growth in the employment generating occupations accounting for the urbanisation trends in most other tates.
- (2) The Committee recommends that urbanisation on sound lines and in response to economic growth is to be encouraged on its own merits as well as because the higher level of income in towns is expected to create additional demand for the produce of the agricultural sector, apart from reducing the load of redundancy on land.
- (3) The Committee observes that even in the large and medium industrial towns, those employed directly in industries constitute only a minority of the total active population, while the majority of them consist of persons employed in transportation, commerce and consumer servicing resulting from the multiplier effects of the primary and secondary occupations. It is, however, emphasised that the multiplier effects can appear only if the primary and secondary industries are stimulated.
- (4) The Committee observes that subsistence farming has no employment multiplier or further on loyment generating value, and that agriculture can transmit employment stimuli only to the extent to which it can produce marketable surplus of foodgrains and commercial crops and thus help urbanisation and industrialisation.

(5) In view of the fact established by the survey that the heaviest incidence of unemployment was on the group of families of the lowest income categories of Rs. 50 and below per month and Rs. 51 to Rs. 100 per month.

We recommend

- (i) that further and more detailed studies of the occupational patterns of this most vulnerable group on a sample basis on the lines of the surveys conducted in the advanced western countries of the Depressed Areas be taken up; and
- (ii) that even on the basis of the available data, measure: to promote wage work, self-employment and relief employments be worked out for the lowest income group in the urban areas by drawing on the organisational and technical experiences of Khadi and Village Industries activities.
- (6) We bring it to the notice of the Government that the Survey reveals the onset of an unemployment problem even among the technically qualified persons and that we have dealt with this problem in our recommendations for the employment of the educated in another chapter.
- (7) We note with some satisfaction that the incidence of unemployment is the lowest, according to this Sample Survey, in the occupational group "Commerce" which accounts for 27 per cent of the occupied families and is made up predominantly of the self-employed persons, thus showing that a policy of fostering self-employment measures may cure the situation to an appreciable extent in the urban areas.
- (8) In view of the restricted scope for employment for women in urban areas as compared to that in the rural areas as indicated by the Census figures, and in view of the special hardships inflicted on families by the unemployment of women in urban areas, we recommend that a special study of the scope for the employment of women may be taken up.
- (9) We note with concern that about 23 per cent of the unemployed bave been without job for more than a year and 31 per cent for less than a year.
- (10) We note that the survey, which had to be completed within a short period of time, could not take up the calculation of the employment provided by the urban economy for the surrounding rural areas, and because this benefit to the surrounding rural areas and the stimuli provided by urbanisation for fostering activities in the surrounding rural zone is an important aspect of the growth of a co-ordinated rururban economy, we recommend further studies of this aspect of the effects of urbanisation.
- (11) In view of the fact that the trend of economic growth in the last decade shows that, apart from the development of one or two large industrial towns, the general line of urbanisation would take the shape of
 - (i) the growth of small separate mining towns,
 - (ii) the rise of small decentralised industrial townlets,
 - (iii) further increase in the population and activities of the small administrative headquarters and commercial towns,
 - (iv) the coming into existence of conurbations around large cities and industrial centres;

and because the Urban Survey of 1954 did not cover the towns in classes IV, V and VI with population below 20 thousand, Lelow 10 thousand and below 5 thousand; we recommend that a survey of such towns, stratified functionally, be taken up.

(12) We draw the attention of Government to the unexpected decay of the rural economy in the areas surrounding the mining settlements and industrial towns and recommend that the Department of Agriculture and the Community Development authorities may be required to look into this adverse unexpected development.



यद्यमेन तप्रते



APPENDIX TO CHAPTER VI TABLES ON URBAN UNEMPLOYMENT SURVEY IN BIHAR. 1954.

क्षत्रमंग तपने

TABLE

URBAN UNEMPLOYMENT SURVEY,

TABLE SHOWING NUMBER OF FAMILIES SURVEYED, NUMBER OF FAMILIES, AFFECTED SAMPLE POPUPERSONS FOR-

Serial		C**	4		Number of families	Number of families -	Samı	ole populati	on.	Persons	between 1	6—60.
no.		City or	town.		surveyed.	affected.	Males.	Females.	Total.	Males.	Females.	Total.
1		2			3	4	5	6	7	8	9	10
1	Patna	•	•		1,133	408	4,624	4,071	8,695	2,751	2,448	5,199
2	Ranchi		•		443	99	1,714	1,437	3,151	983	892	1,875
3	Bhagalpur	•	•		500	244	2,091	2,076	4,167	1,139	1,135	2,274
	TOTA	L—Clas	s I towns	4	2,076	e Gilla	8,429	7,584	16,013	4,873	4,475	9,348
4	Muzaffarp	ur .			301	73	1,120	998	2,118	626	574	1,200
5	Chapra				306	98	1,364	1,194	2,558	711	750	1,461
6	$\mathbf{Arr}_{\delta}\mathbf{h}$		•	••	300	970	1,248	1,256	2,504	649	660	1,309
	TOTA	L—Clas	s Iftown	is	907	3717	3,732	3,448	7,180	1,986	1,984	3,970
7	Motihari				140	47	535	518	1,053	289	302	591
8	Madhubar	ni .			133	42	480	489	969	258	284	542
9	Jamalpur				267	155	1,345	1,252	2,577	728	751	1,479
10	Purnea		•		150	39	494	427	921	306	270	576
11	Deoghar		•		185	94	1,012	837	1,849	565	509	1,07
12	Hazaribag	h .			222	34	849	826	1,675	462	468	930
13	Giridih				166	25	723	697	1,420	3 80	398	778
14	Purulia				263	126	983	985	1,928	545	565	1,110
15	Dhanbad	•	•	••	207	5	733	710	1,443	492	459	951
TO)TAL—Cla	ss III to	owns —		1,733	565	7,154	6,681	13,835	4.025	4,006	8,031
G1	RAND TO	ΓAL			4,716	1,663	19,315	17,713	37,028	10,884	10,565	21,349

I.

BIHAR, 1954.

LATION, PERSONS BETWEEN 16—60 YEARS, TOTALLY UNEMPLOYED PERSONS AND PARTIALLY, EMPLOYED EACH TOWN.

Wholly	unemployed pe	rsons.	Partie	ally unemploye	ed persons.	Total	affected person	s.
Male∢.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
11	12	13	14	15	16	17	18	19
442	49	491	175	2	177	617	51	668
120	4	124	2	• •	2	122	4	126
203	77	280	143	20	163	346	97	448
765	130	895	320	7 - 22 - 22 - 22 - 22 - 22 - 22 - 22 -	342	1,085	152	1,23
92	4	96	15		15	107	4	111
107	1	108	42		42	149	l	150
149	17	166	80	6	86	229	23	259
348	22	370	137	6	143	485	28	513
33	3	36	25	2	27	58	5	63
30	• •	- 30	36	मन्त्रमंत्र नुपने	36	.6		66
173	2	173	88	1	89	261	÷	_414
41	2	43	8	1	9	49	3	52
101	8	109	57	• •	57	158	ι	166
39	4	43	7	• •	7	46	4	50
24	••	24	12	••	12	36		30
112	11	123	76	5	81	138	16	204
6	1	7	1		1	7	1	8
, 559	31	590	310	9	319	869	40	909
1,672	183	1,855	767	37	804	2,439	220	2,659

TABLE URBAN UNEMPLOYMENT TABLE SHOWING ESTIMATED POPULATION AND

Serial no.	Toy	vn.		Estimated , o, of families.	Estimated no. of affected	Raising factor.		population /n in colum	in families n 3.	age-group	l populatio in famili column 3.	
					families.		Males.	Females.	Total.	Males.	Females.	Total.
1		2	d	3	4	5	6	7	8.	9	10	11
1	Patna			41,547	14,951	36.67	1,69,562	1,49,284	3,18,846	1,00,679	89,768	1,90,447
2	Ranchi			17,795	3,977	40.17	68,851	57,724	1,26,575	39,487	35,832	75,319
3	Bhagalpur	• •		14,665	7,156	29.33	61,329	60,889	1,22,218	33,407	33,290	66,697
	TOTAL-	Class I To	wns	74,007	26,094		2, 99,742	2,67,897	5,67,639	1,73,573	1,58,890	3,32,463
4	Muzaffarpur			11,534	2,:97	38.32	42,918	38,243	81,161	23,988	21,996	45,984
5	Chapra			8,075	2,586	26.39	35 ,996	31,510	67,506	18.763	19,793	38,556
6	Arrah	••		8,166	4,791	27.22	33, 971	34,188	68,159	17,663	17,965	35,631
	TOTAL -	Class II T	owns	27,775	10,174	1114	-1,12,885	1,03,941	2,16,826	60,417	59,754	1,20,171
7	Motihari			3,431	1,152	24.51	13,113	12,696	25,809	7,083	7,402	14,485
8	Madhubani	• •		3,338	1,054	25.10	12,048	12,274	24,322	6,476	7,128	13,604
9	Jamalpur		••	4,745	2,719	17.77	23,901	21,895	45,796	12,937	13,345	26,282
10	Purnea			4,452	1,158	29.68	14,662	12,673	27,335	9,082	8,014	17,096
11	Deoghar	.:		2,683	1,363	14.50	14,674	12,137	26,811	8,193	7,381	15,574
12	Hazaribagh	• •		4,935	756	22.23	18,873	18,362	37,235	10,270	10,404	20,674
13	Purulia	••		6,236	2,987	23.71	23,307	22,406	45,713	12,922	13,396	26,318
14	Dhanbad			5,663	137	27.36	20,055	19,426	39,481	13,461	12,558	26,019
15	Giridih	• •	••	3,566	537	21.48	15,530	14,972	30,502	8,162	8.549	16,711
	TOTAL—	Class III '	Fowns	39,049	11,863	••	1,56,163	1,46,841	3,03,004	88,586	88,177	1,76,763
	GRAND ?	TOTAL		1,40,831	48,131	••	5,68,790	5,18,679	10,87,469	3,22,576	3,06,821	6,29.397

II.
SURVEY, BIHAR.
PERSONS AFFECTED BY UNEMPLOYMENT.

	ed persons, i.e., t partially employe	Number of affect employed and 1	ons.	utially employed pers	Estimates of par	ons.	memployed pers	stimates of t
Total.	Fernales.	Males.	Total.	Females.	Males.	Total.	Females.	Males.
20	19	18	17	16	15	14	13	12
24,195	1,870	22,625	6,490	73	6,417	18,005	1,797	16,208
5,961	161	4,900	80	••	80	4,981	161	4,820
12,996	2,848	10,148	4,784	590	4,194	8,212	2,258	5,954
42.552	4.879	37,673	11,354	663	10,691	31,198	4,216	26,982
4,253	153	4,100	575		575	3,678	.153	3,525
3,958	26	3,932	1.108	4	1,108	2,850	26	2,824
6,86	626	6,234	2,341	163	2,178	4,519	463	4,056
15,07	805	14,266	4,024	TILE (163 1)	3,861	11,047	642	10,405
1,54	123	1,422	662	a-1113 49 1-1	613	883	74	809
1,65		1,657	166	••	901	753	••	753
4,69	53	4,638	1,582	18	• 1,564	3,109	35	3,074
1,54	89	1,454	267	30	237	1,276	59	1,217
2,40	116	2,292	827	• •	827	1,581	116	1,465
1,11	89	1,023	156	••	156	956	89	867
4,838	380	1,458	1,921	119	1,802	2,917	261	2,656
21	27	191	27	• •	27	191	27	164
77	• •	771	258	• •	258	516	• •	516
18,78	877	17,909	6,604	216	6,388	12,182	661	11,521
76,40	6,561	69,848	21,982	1,012	20,940	54,427	5,519	48,908

TABLE
URBAN UNEMPLOYMENT SURVEY,

Town	15.		Number of families surveyed.	Number of affected families.	Family size.	Percentage of unemployable male to the male population.	female to the female population.	c (males and females) to
	1		2	3	4	5	6	7
Patna	• •		1,133	408	7.67	59.49	69.13	59.68
Ranchi	• •		443	99	7.11	57.35	62.07	59.50
Bhagalpur	••	• •	500	244	8.33	54.47	54.67	34.57
Total—Class I	Towns	••	2,076	751	7.71	57.81	59.00	58.35
Muzaffarpur		••	301	73	7.04	55.89	57.51	56.65
Chapra			306	98	8.36	52.12	62.81	57.11
Arrah	••		300	176	8.35	52.00	52.54	52.27
TotalC	lass II Towi	18	907	347	7.92	53.12	57.54	55.29
Motihari	• •	• •	140	47	7.52	54.01	58.30	56.12
Madhubani			133	42	7.29	53.75	58.07	55.93
Jamalpur	• •		267	153	9.65	54.12	60.95	57.39
Purnea			150	39	6.14	61.94	63.23	62.54
Deoghar			185	94	10.00	55.83	60.81	58.08
Hazaribagh	• •		222	34	7.55	54.41	56.65	55.52
Giridih	••		166	25	8.55	52.55	57.10	54.78
Purulia (263	126	7.33	55.44	59.78	37.57
Dhambad	••		207	5	6.97	67.12	64.61	65.90
Total—-Cla	ss III Towns		1,733	565	7.98	56.12	59.96	58.04
GRA	AND TOTA	L	4,716	1,663	7.85	56.34	59.03	ŏ7.65

III.
BIHAR, PERCENTAGE.

Percentage of affected persons to total persons in the employable age-group in the family surveyed.	Percentage of males wholly unemployed to employable males.	Percentage of females wholly unemployed to employable males.	Percentage of males partially employed to the employable males.	Percentage of fomales partially employed to employable females.
8	9	10	11	12
12.84	16.06	2.00	6.36	0.82
6.72	12.20	0.45	0.20	
19.48	17.82	6.78	12.55	1.76
13.23	15.69	2.90	0.56	0.98
9.25	14.69	0.70	2.39	
120.26	15.04	0.13	5.90	
19.25	22.95	2.57	1.23	0.91
12.92	17.52	1.10	6.89	0.30
10.65	11.41	0.99	8.65	0.66
12.17	11.62	सन्त्रमेन अपने	13.95	••
17.84	23.76	0.27	12.22	0.13
9.02	13.39	0.74	2.61	0.37
15.45	17.87	1.57	10.08	
5.37	8.44	0.85	1.51	
4.62	6.31	••	3.15	••
18.37	20.55	1.94	13.94	0.88
0.84	1.21	0.22	0.20	• •
. 11.31	13.88	0.77	7.70	0.22
12.45	15.36	1.75	7.05	0.35

TABLE
DISTRIBUTION OF SAMPLED HOUSEHOLDS ACCORDING TO OCCUPATION

erial	Occupat	llon.		Ilti	terate.			Literate	֥	, Pr	imary Edu	cation.
) FI (1	Occupa	non.		Un- affected.	Affected.	Total.	Un- affected.	Affected.	Total.	Un- affected.	Affected.	Total.
I		2		3	4	5	6	7	8	9	10	11
1	Cultivation	••	• •	173	55	228	81	44	125	46	36	8:
2	Industries and Servi	ces		729	323	1,052	625	278	903	274	155	429
	(i) Primary In	dustries		27	13	40	10	6	16	3	1	4
	(ii) Processing a	and Manufac	turing	81	49	130	23	21	44	19	26	48
	(iii) Processing	of Metals		14	3	17	12	6	18	8	1	ε
	(iv) Processing not els	and manufa ewhere spec		31	20	51	28	14	42	14	11	28
	(v) Constructio	n and Utiliti	os	53	22	75	17	12	29	8	7	15
	(vi) Commerce	••		195	-64	259	363	117	480	136	61	197
	(vii) Transport		• •	67	39	106	29	18	47	22	12	34
	(viii) Medical 1 Govern	Educational ment Employ	and zees.	20	12 14	FIF 34	32	14	46	19	18	37
	(ix) Services no fied.	t elsewhere	speci-	238	99	337	ш	70	18i	45	18	63
3	Miscellaneous			19	27	46	9	3	12	2	G	8
4	Occupationless	••	• •	58	47	105	27	20	47	21	36	57
	Tot	al		979	452	1,431	742	345	1,087	343	233	576
				S		30.34			23.05			12.21
	Percentage			68	32	100	68	32	100	60	40	100

IV.

AND EDUCATION OF THE HEADS OF THE FAMILIES.

Education	upto Middle st	andard.		triculation.			Intermediate.	
Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total
12	13	14	15	16	17	18	19	
28	36	64	14	13	27	3	5	8
299	195	494	250	136	386	55	33	88
1	1	2	• •				1	1
5	5	10	. 50	30				
11	4	15	1	22	3	3	• •	3
8	10	18	4	1	5		••	••
3	8	11	1		1	••		• •
148	55	203	63	24	87	12	1	13
49	63	92	99	56	155	30	16	46
22	23	45	14	6	22	••	• •	••
52	46	98	68	114511	113	10	15	25
8	' 5	13	7	••	7	1	••	1
16	36	52	31	36	67	5	10	15
351	272	623	302	185	487	64	48	112
		13.21			10.33			2.37
56	44	100	62	38	100	57	43	100

Serial			G	raduate.		Post-G	raduate.		Tea	ching.	
no.	Occupation.		Un- affecte	ed. Affected.	Total.	Un- affected.	Affected	. Total.	Un- affected.	Affected.	Total
1	2		21	22	23	24	25	26	27	28	29
ı	Cultivation		8	8	16			••			
2	Industries and Services		58	20	87	24	2	26	13	6	19
	(i) Primary Industr	ies	.6		83	••	••			• •	
	(ii) Processing and M	anufacturing	••		10000	••		••		••	
	(iii) Processing of Me	tals	• •			• •	••		••		••
	(iv) Processing and n not elsewhere		Z		1	••	••	••	••	• •	••
	(v) Construction and	Utilities	2		2	•-	••	••			
	(vi) Commerce		13	2	15	2	••	2	1	1	2
	(vii) Transport		30	20	50	21	2	23	12	5	17
	(viii) Medical Educatio Government I	nal and Employecs.	••		••	••	••	• •	• •	••	• •
	(ix) Services not specified.	elsewhere	13	6	19	1	••	1	••	••	••
3	Miscellaneous		1		1	••	••		• •		
4	Occupationless	••	14	8	22	2	4	6	2	1	3
	Total	••	81	45	126	26	6	32	15	7	22
	.		(4	2.67			0.68			0.47
	Percentage		64	36	100	81	19	100	68	32	100

IV-contd.

	Engineering.	······································		Agriculture.			Veterinary.	
Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total
30	31	32	33	34	35	36	37	38
••		••	••	••	••	••	••	••
11	4	15	3	••	3	••	1	1
••	• •	••	••	••	• •	••	••	
••	• •	••		••	• •	••	• •	••
••	••	• •	1200		••	••	• •	••
1	••	1			••	••	••	• •
1	••	1			••	••	••	• •
• •	••	• •			• •	••	••	• •
••	••	••		dia	••	• •	••	••
9	4	13	3		3	••	1	1
••	••	••	विद्य	प्रवास्थित प्रवासम्बद्धाः	••	••	••	••
• •	••	• •	• •	••	••	•••	••	• •
1	3	4	• •	• •	••	1	••	1
12	7	19	3	• •	3	1	1	2
		0.41			0.06			0.04
63	37	100	100	••	100	50	50	100

TABLE

~				Co	mmerce.			Legal.		N	Medical.	
Serial no.	Occupatio	on.	-	Un- affected.	Affected.	Total.	Un- affected.	Affected.	Total.	Un- affected.	Affected.	Total
1		2		39	40	41	42	43	44	45	46	47
1	Cultivation				• •		1		1			
2	Industries and Sc	rvices		7	l	8	79	40	119	32	7	39
	(i) Primary	Industries	• •				• •					
	(ii) Processin	g and Manufac	turing				• •	• •				
	(iii) Processing	g of Metals		. \$							•••	
	(iv) Processing not e	g and manufa Isewhere speci	eturing fied.	(ia.		• •	• •	• •	• •	• •	
	(v) Construct	ion and Utiliti	es	• •			··					
	(vi) Commerce		• •	1	1	12	1		1	1		1
	(vii) Transport	••		3		3	15	15	30	80	7	37
	(viii) Medical Gover	Educational nment Employ	and ees.	10			• •	••	• •	• •	• •	• •
	(i.e) Services specified	not elsew	hero	2	시작시니다 :	2	63	25	88	1	• •	1
3	Miscellaneous	••		••				ı	1			1
4	Occupationless		• •	••	2	2	7	3	10	2	1	3
		Total		7	3	10	87	44	131	34	8	42
	Percen	tage	{			0.21			2.78			0.89
	į ereen		,	70	30	100	66	34	100	81	19	100

IV--concld.

	Others.		•	Total.		:	Percentage.	
Uauffected.	Affected.	Total.	Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total.
48	49	50	51	52	53	54	55	56
1		1	355	197	552	64	36	11.70
4	7	11	2,463	1,217	3,680	67	33	78.04
• •		• •	41	22	63	65	35	1.30
	• •		128	101	229	36	44	4.83
. •	• •	• •	49	16	65	75	25	1.38
• •		• •	89	57	146	61	39	3.09
• •	1	I	8.3	50	135	63	37	2.86
• •		• •	936	326	1,262	74	26	26,76
2	2	4	374	217_	591	63	37	12.53
• •	••	••	155	100	255	61	39	5.41
2	4	6	606	328 113 525	934	65	35	19.81
• •		• •	47	42	89	53	47	1.88
1	• •	1	188	207	395	48	52	8.38
6	7	13	3,053	1,663	4,716	65	35	100
		0.28			100.00			
46	54	100	65	35	100	• •		

TABLE
DISTRIBUTION OF SAMPLED HOUSEHOLDS ACCORDING TO

Serial	l Novable To		III	literate.		Li	iterate.		Primar	y Educatio	n.
no.	Monthly Income.		Un- affected	. Affected.	Total.	Un- affected.	Affected.	Total.	Un· affected.	Affected.	Total.
1	2		3	4	5	6	7	8	9	10	11
1	Rs. 1—50		448	205	653	129	96	225	77	72	149
2	Rs. 51—100		358	182	540	274	130	404	128	96	224
3	Rs. 101—150	• •	91	39	130	135	50	185	58	35	95
4	Rs. 151—200		48	15	63	66	29	95	31	13	44
5	Rs. 201—250		11	3	14	20	9	29	6	2	8
6	Rs. 251—300		9	3	12	44	11	55	17	11	28
7	Rs. 301—350		1	1	2.5	5	1	6	2	3	E
8	Rs. 351—400	••	1	3	4	15	5	20	. 5	••	
9	Rs. 401—450		,.,	• •	<u>स्त्र</u> ा	네크 누기는	1	2	1	• •	1
10	Rs. 451—500		3		3	26	5	31	4		4
11	Rs. 501—750		4	1	5	б	3	9	5	• •	5
12	Rs. 751—1,000		3		3	12	2	14	3	1	4
13	Rs. 1,001-1,500	'	2		2	2	1	3	2		2
14	Rs. 1,501 and above	••	••		• •	7	2	9	4		4
	Total		979	452	1,431	742	345	1,087	343	233	576
	Dominion			;	30.34			23.05			12.21
	Percentage	•	68	32	100	68	32	100	60	40	100

V.

INCOME AND EDUCATION OF THE HEADS OF THE FAMILIES.

Education	upto Middle s	tandard.	<i>π</i>	Matriculation.		Inte	rmediate.	
Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total
12	13	14	15	16	17	18	19	20
40	56	96	15	14	29	••	2	2
105	113	218	87	67	154	10	9	19
70	34	104	58	31	89	20	10	30
42	30	72	55	23	78	11	9	20
24	7	31	17	14	31	3	5	8
20	12	32	17	12	29	6	2	8
5	4	9 .	8	3	11	2	2	4
7	5	12	15	3	18	3	2	5
1	2	3	2		3		• •	
11	4	15	12	5	17	4	4	8
3	2	5	6 विस्त्री		12	2	• •	2
7	3	10 .	4	3	7	1	2	3
3	• •	3	3	1	4	• •	. 1	1
13	• •	13	3	2	5	2	• •	2
351	272	623	302	185	487	64	48	112
		13.21			10.33			2.37
56	44	100	62	38	100	57	43	100

39 L₁b.—25

3:-1	Monthly Towns		G	raduate.		Post	-Graduate.		Т	eaching.	
Serial no.	Monthly Income.	_	Un- affected.	Affected.	Total.	Un- affected.	Affected.	Total.	Un- affected.	Affected.	Total.
1	2		21	22	23	24	25	26	27	28	29
1	Rs. 1—50		2		2			24.0		••	• •
2	Rs. 51—100		4	1	5	1	••	1	3	2	ſ
3	Rs. 101—150		14	15	29			••	3	• •	9
4	Rs. 151-200		9	12	21	3	2	5	••	1	I
5	Rs. 201—250		6	4	-10		••	1	1	1	2
6	Rs. 251—300	••	8	3 🕏	7 II	4	1	5	3	2	Ē
7	Rs. 301—350	••	5	2	7			••	1		
8	Rs. 351-400		6		6	4	••	4	2		2
9	Rs. 401—450		2	1	3		••	••	• •		
10	Rs. 451-500	••	5	5	10	2	1	3	••	1	
11	Rs. 501—750		4		44	3	1	4	••	••	• •
12	Rs. 751—1,000		6	1	7	5	_	5	••		
13	Rs. 1,001—1,500		1	1	2	49 975	918	2	••	••	• •
14	Rs. 1,501 and above	••	9	• •	9	1	1	2	2	••	:
	Total	••	81	45	126	26	6	32	15	7	2:
	D	ŗ			2.67			0.68			0.4
	Percentage .	• {	64	36	100	81	19	100	68	32	10

V—conta.

	Engineering.		A	griculture.		Vet	erinary.	-
Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total.	Unaffected.	Affected.	Total
30	31	32	33	34	35	36	37	38
••	1	1	••		••		••	
1	• •	1	••		• •	1	••	1
1	1	2	••	• •	••	• •	3	1
3	1	4	1	••	1	• •	• •	• •
2	••	2	lyng!		1	••	-	670
••	1	1	1		1	••	• •	• •
1	1	2			• •	••	• •	••
• •	••	• •			••	••	••	••
1	• •	1	1//		• •	• •	••	•-•
1	2	3			• •	••	• •	***
1	• •	1				••	••	••
1	••	I				••	• •	••
	••	••	. 46	सन नवन	• •	••	••	••
4 •	• •	••	••	• •	••	••	••	••
12	7	19	3	• •	3	1	1	2
		0.41	•		0.06			0.04
63	37	100	100	• •	100	50	50	100

TABLE

Serial	Wanthly Lynnin		Со	mmerce.			Legal.			Medical.	
no.	Monthly Income.		Un- affected.	Affected.	Total.	Un- affected.	Affected.	Total.	Un- affected,	Affected.	Total.
1	2		39	40	41	42	43	44	45	46	47
1	Rs. 1—50	••	••	1	1	, .	1	1	1	••	
2	Rs. 51—100			1	1	.1	3	7	õ	1	1
3	Rs. 101-150		5	••	5	4	5	9	3	3	6
4	Rs. 151—200	••		••		16	9	25	4		б
5	Rs. 201—250		••	••		14	6	20	1	1	4
6	Rs. 251—300		2	••	A3	13 33	8	11	8	1	2
7	Rs. 301—350		••		(2.1)	10	2	12	1		9
8	Rs. 351—400	••	• •	• •		8	1	9	1		1
9	Rs. 401—450	••	• •	• •		3	1	4			• •
10	Rs. 451—500	• 1•	• •	1	1	4		5		••	
11	R. 501—750	••				9	2	11	5	1	6
12	Rs. 751—1,000		• •	••	12:	의 25 - 독 취 7 이 리 1 년	2	6	1		1
13	Rs. 1,001—1,500				77	2113 T3	2	5	4	1	រី
14	Rs. 1,501 and above					4	2	6			
	Total	••	7	3	10	87	44	131	34	8	42
	Percentage		ſ		0.21			2.78			0.89
			70	30	100	66	34	100	81	19	100

V-concld.

	Others.			Total.		- Percentage.	1	Percentage.	
Jnaffected.	Affected.	Total.	Unaffected.	Affected.	Total.	1 erechtage.	Unaffected.	Affected.	Total
48	49	50	51	52	53	54	55	56	57
1	1	2	713	449	1,162	24.64	61	39	100
1	6	7	982	611	1,593	33.78	62	38	100
1	• •	1	463	224	687	14.57	67	33	100
	••	••	289	144	433	9.18	67	33	100
	• •	••	107	55[1	159	3.37	67	33	100
3	• •	3	145	67	212	4.49	68	32	100
	• •		41	19	60	1.27	68	32	100
	• •		67	19	86	1.82	78	22	100
	• •	••	11	6	17	0.36	65	35	100
	• •		73	28	101	2.14	72	28	100
	• •		48	16	61	1.36	75	25	100
• •	• •		47	14	THE T 61	1.29	77	23	100
	• •		<u></u>	7	29	0.62	76	24	100
• •	••		45	7	52	1.11	87	13	100
6	7	13	3,053	1,663	4,716	100.00	65	35	100
		0.28			100.00				
46	54	100	65	35	100	••		••	

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TABLE
DISTRIBUTION OF SAMPLED HOUSEHOLDS ACCORDING TO INCOME

Serial	Income.	_	Cu	ltivation.		Pr	imary Indus	tries.	Food,	g and manu Textile, Lear Products the	ther and
no.	<u></u>		Un- affected,	Affected.	Total.	Un- affected.	Affected.	Total.	Un- affected.	Affected.	Total.
1	2		3	4	5	6	7	8	9	10	11
1	Rs. 1—50		93	35	128	13	G	19	59	45	104
2	Rs. 51—100		125	69	194	17	11	28	45	39	84
3	Rs. 101—150		59	33	92	8	2	10	14	10	24
4	Rs. 151—200	• •	22	20	42	2	1	3	7	G	13
5	Rs. 201—250		7	7	14	1	1	2			
6	Rs. 251—300	• •	16	8	24		••	• •	••	• •	
7	Rs. 301—350	• •	6	1	7		••	• •	••	• •	••
8	Rs. 351—400	• •	4	3	7		1	1	1	1	2
9	Rs. 401—450		1	••				• •	1	• •	1
10	Rs. 451—500	· • •	8	6	13			• •	••	• •	• •
11	Rs. 501—750	• •	7	4	fili o		••	• •	1	• •	1
12	Rs. 751—1,000		4	6	10		• •	• •	• •	• •	• •
13	Rs. 1,001—1,500	• •	••	4	सन्दूपन	नगन्.	••	• •		• •	
14	Rs. 1,501 and above	••	3	1	4	• •	••	• •	• •	• •	• •
	TOTAL		355	197	552	41	22	63	128	101	229
	PERCENTAGE	•	64	36	11.70 100	65	35	1.36 100	56	44	4.85 100

VI.

AND OCCUPATION OF THE HEADS OF THE FAMILIES.

Metals. (and manufac Chemicals and cts the cof.	tur — d	Processing not elsew	and manuschere specific	facturing ed.	Constru	etion and ut	ility.		Commerce.	
Un- affected.	Affected.	Total	Un- affected.	Affected.	Total.	Un- affected,	Affected.	Total.	Un- affected,	Affected.	Total
12	13	14	15	16	17	18	19	20	21	22	23
6	4	10	19	22	41	25	19	44	133	89	7** 22
25	6	31	40	24	64	40	23	63	296	104	40
3	3	6	24	4	28	6	7	13	160	47	20
4	3	7	4	3	7	8	••	8	107	32	13
4	• •	4	1	1	2,7	1	1	2	33	11	4
1	• •	1	1	2	3	3		3	67	17	8
••	• •	••	• •						6	7	1
44	400	61.6	••	••	400	- ·	••		25	6	3
••	••	***	• •		1/441	1	••	1	3	1	
1	944	1	1	1	1	1	••	1	37	6	4
1	• •	1	• •				• •		14	4	1
1	-	1	4.4	• •			••	••	22	1	2
4-1	•.•	• •	• •	••	वन्त्रस्य	नपन	• •	• •	12	••	1
3	••	3	• •	••	• •	••	••	• •	21	1	2
49	16	65	89	57	146	85	50	135	936	326	1,26
75	25	1.38 100	61	39	3.09 100	63	37	$\frac{2.86}{100}$	74	26	26.7 10

TABLE
DISTRIBUTION OF SAMPLED HOUSEHOLDS ACCORDING TO INCOME

			1	Fransport,			Education, ninistration			not elsewl specified.	iere
Serial no.	Income.	-	Un- affected,	Affected.	Total.	Un- affected.	Affected,	Total.	Un- affected.	Affected.	Total.
1	2		24	25	26	27	28	29	30	31	32
1	Rs. 1—50		36	22	58	46	23	69	207	108	315
2	Rs. 51—100	• •	71	39	110	96	82	178	180	113	293
3	/Rs. 101—150		23	15	38	66	38	104	71	41	112
4	Rs. 151200		11	6	17	41	25	66	5.3	29	84
5	Rs. 201—250	••	6	2	8	28	14	42	16	11	27
6	Rs. 251—300		5	6		27	13	40	1.5	10	25
7	Rs. 301—350	••	• •	2	2	8	4	12	13	4	17
8	Rs. 351-400	• •	1	2	3	19	1 .	20	14	4	18
9	Rs. 401—450		• •			3	• •	3	. 2	2	4
10	Rs. 451—500	• •	••	4	4.	3	7	10	12	1	13
11	Rs. 501—750		••	2	2	114	3	17	7	• •	7
12	Rs. 751—1,000	• •	1 .		1	10	1	11	8	4	12
13	Rs. 1,001—1,500		• •	\		8	3	11	5	• • •	1
14	Rs. 1,501 and above		1		मन्त्रभव	नयनं	3	8		1	6
	TOTAL		155	100	255	374	217	591	606	328	934
	PERCENTAGE	• •	{ 61	39	5.41 100	63	37	12.53 100	6.5	35	19.81 100

VI—concid.

AND OCCUPATION OF THE HEADS OF THE FAMILIES—concid.

Misc	ellaneous.		Occ	eupationless.			Total.			Pe.	rcentage.	
Un- affected.	Affected.	Total.	Un- affected,	Affected.	Total.	Un- affected.	Affected.	Total.	- Per- centage.	Un- affected,	Affected	Total
33	34	35	36	37	38	39	40	41	42	3	-14	₹5
11	11	22	65	65	130	713	449	1,162	24.64	61	39	100
9	26	35	38	75	113	982	611	1,593	33.78	62	38	100
4	2	6	25	22	47	463	224	687	14,57	67	33	001
8	••	8	20	19	39	289	144	433	9.18	67	33	100
1	••	1	9	4	13	107	52	159	3.37	67	33	100
1	1	2	9	10	19	145	67	212	4.49	68	32	160
2	••	2	6	1	7	41	19	60	1.27	68	32	100
1	••	1	2	1	3	67	19	86	1.82	78	22	100
			••	3	3	li -	6	17	0.36	65	35	100
3	••	3	8	3	11	73	28	101	2.14	72	28	100
••	1	1	4	2	6	48	16	64	1.36	75	25	100
1	••	1	••	2	2	47	14	61	1.29	77	23	100
1	• •	. 1	••	••		22	7	29	0.62	76	24	100
5	1	6	2	••	2	1113 45 T	7	52	1.11	87	13	100
47	42	89	188	207	395	3,053	1,663	4,716	100.00	65	3.5	100
53	47	1.88 100	48	52	8.38 100	65	35	100.00 100				

³⁹ Lab. -- 26

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TABLE
DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS

		,	Wholly unemployed persons.								
Serial 110.	Age-group (in	years). —	Class 1 towns.	Class 11 towns.	Class 11I towns.	Total.	Percentage.				
1	2		3	4	5	6	7				
1	16-20		364	148	283	795	42.86				
:1	21-25		270	115	145	530	28.58				
3	26-30	• •	122	45	78	245	13.21				
4	31-35	• •	50	20	36	108	5.82				
5	36—40	• •	34	12	21	67	3.61				
6	41-45	• •	16	8	8	32	1.73				
7	46—50		24		8	43	2.31				
8	51 55		12		5	24	1.20				
ย	56-60	• •	3	$\frac{2}{2}$	U	11	0.59				
	TOTAL	••	895	370	590	1,855	100.00				

विद्यापेन तपनि

VII.
ACCORDING TO AGE-GROUPS IN THE TOWNS OF BIHAR.

	Partially u	nemployed pers	ons.		Total of whole unemploye	y and partialled persons.
Class I towns.	(lass II towns.	Class III towns.	Total.	Percentage.	Number.	Percentage.
8	9	10	11	12	13	14
70	28	84	182	22.64	977	36.74
80	29	77	186	23.13	716	26.93
93	33	54	180	22.39	425	15,98
49	19	35	103	12.82	211	7.94
24	17	32	73	9.08	140	5.27
11	10	16	37	4,61	69	2.59
8	4	15 g	27	3.35	70	2.64
7	3	4	14	1.74	38	1.42
••	••	2	2	0,24	13	0,49
342	143	319	804	100.00	2,659	100.00

TABLE
DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS

Wholly unemployed persons Serial General Education Standard. no. Class I Class II Class III Total. Percentage. towns. towns. towns. 3 4 5 6 7 l 1 Illiterate 29 249 13.42 149 71 . . Literate 79 31 97 207 11.16 . . Primary 9564 72 231 12.45 31.22 Middle English 276 126 177 579 Matriculation ... 148 64 105 317 17.09Intermediate ... 68 26 32 126 6.79 24 Graduate 21 935.01 48 Post-Graduate 9 2 3 14 0.75Teaching 4 5 0.27. . Commerce 16 1 18 0.97Law 2 11 5 9 0.4912 Others 2 5 7 0.38 TOTAL 370 895 590 1,855 100.00 यहत्रमंद्र नगन

VIII.
ACCORDING TO GENERAL EDUCATIONAL STANDARD.

	Partially u	nemployed per	sons.		Total of wholly and partial unemployed persons.		
Class I towns.	Class II towns.	Class III towns.	Total.	Percentage.	Number.	Percentage.	
8	9	10	11	12	13	14	
152	51	114	317	39.43	566	21.29	
39	19	89	147	18.28	354	13.31	
88	44	41	173	21.52	404	15.19	
43	22	43	108	13.43	687	25.84	
9	5	21	35	4.35	352	13.24	
4	••	3	7	0.87	133	5.00	
4	2	1	:	0.87	100	3.76	
••	••	1	-1 - 1 = 1	0.13	15	0.56	
••	••	• •	6.1	0.00	5	0.19	
••	••	• •	1 4:11	0.00	18	0.68	
1	••	• •		0.13	10	0.38	
2	••	6	8	0.99	15	0.56	
342	143	319	804	100.00	2,659	100.00	

TABLE IX.

DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS ACCORDING TO TECHNICAL AND VOCATIONAL QUALIFICATIONS.

Qualification.		Who	lly unemplo	yed persons		Partie	illy unempl	oyed person	s.	Total of
Q панисатіоп.		· Class I towns.	Class II towns.	Class III towns.	Total.	Class I towns.	Class II towns.	Class III towns.	Total.	and partially unein ployed persons.
1		2	3	4	5	<u> </u>	7	8	9	10
Technical.							•			
Medical		9	4	3	16		2	2	4	20
Engineering		2		••	2	••	• •	••		2
Carpenter and Wood Sawer,	••	6	••	2	8	4	••	2	6	14
Goldsmith		2	• •	1	3	2	• •	1	3	6
Blacksmith		1	••	· ·		1	••	2	3	4
Motor Mechanic		6	3	9	14	3 4	• •	3	7	21
Radio Mechanic		7	2	1	10	4	• •	• •	4	14
Shorthand Type-writ	ing	7	••		7	1	• •	••	1	8
Typewr ting		24	12	5	41	3	• •	3	6	47
Electrician		8	4	8	20	. 5	• •	2	7	27
Motor Driver	••	1	3	5	9	4	1	1	6	15
Pilot		1	. ••	l China	1		• •	• •	••	1
Accountant		2	3	2	गंध गर्न	1	1	2	4	11
Surveyor		2			2	• •	• •	1	1	3
General Mechanic		8	7	10	25	16	12	3	31	56
Cinema Operator		• •	1	2	3	• •	••		••	3
Fitter	••	• •	••	2	2	••	••	5	5	7
Chargeman			• •	1	1	••	••	••	• •	1
Cycle Repairer		• •		4	4	• •	• •	1	1	5
Soap Making	• •	• •	••	7	7	• •		15	15	22
Telegraphist	••	••		2	2	• •	• •	••	• •	2
Compounder		• •	••	5	5		••	••	• •	5
Vocational.										
Legal	• •	5	3	3	11	1	1	2	4	15
Teaching		1	2	6	9	3	••	ì	4	13
Mason		5	••	6	11	8	6	23	37	48
Literator		1		1	2			••		2
Cobbler		5	• •	••	5	14		• •	14	19

TABLE IX—concld.

DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS ACCORDING TO TECHNICAL AND VOCATIONAL QUALIFICATIONS.

Qualification.	Who	lly unemplo	oyed persons		Partie	Partially unemployed persons			
Quantitation.	Class I towns.	Class II towns.	Class III towns.	Total.	Class I towns.	Class II towns.	Class III towns.	Total.	- wholly and partially unem- ployed persons.
]	2	3	4	5	6	7	8	9	10
Office Assistant	4,	•• ,	••	4	5	••	• •	5	9
Tapper of Palm Tree	4	• •	••	4	3	• •		3	7
Cow Milching and Agricuture.	l- 1	••	••	1	5	••	3	8	9
Barber	1	••	1	2	1	••	••	1	3
Press Worker	6	••	••	6	••	••	1	1	7
Weaving	30	9		39	40	20	4	64	103
Tailoring and Embroider	, 4	11	17 + 7(24)	39	3 14	8	9	31	70
Painting	3			3	1	••	1	2	5
Biri Making		• •			4	• •	8	12	12
Sweeper	• •		1	i	1		••	1	2
Book Binding	3	• •		3	3	••	• •	3	6
Potter			3, 1	37	1	• •	1	1	4
Without professional qua	. 737	306	454	1,497	194	93	179	466	1,963
lifications. Agriculture			4	मिन अपने		• •	1	1	5
Mining	• •	• •	1	I		••			1
Confectionery	••	• •	l	1	••	• •	1	1	2
Foundry Worker	••	• •	1	1	• •	••	• •		1
Gardener	••		5	5	• •	••			5
Washerman	• •	• •	7	7	••	• •	7	7	14
Domestic service and	• •		3	3	••	••	6	6	9
cooking. Patwari	• •		3	3	• •	• •			3
Priest	• •	••	1	1	• •	• •	13	13	14
Gramophone Repairer	••		• •		••	••	2	2	2
Building contractor	• •	• •	• •	••		••	ı	1	1
Stone Cutter	••	• •	••	••	• •	• •	1	1	1
Shoe-maker	• •		• •	• •	••	••	7	7	7
Sweetmeat Maker			• •	=	••		1	ı	1
Mazdoor	• •		• •				4	4	4
TOTAL	896	370	590	1,856	342	144	319	805	8,661

TABLE DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS

erial	Over the Charles all the control of		Wholly unemployed persons.						
no.	Occupation of last full-time employment.	Class I towns.	Class II towns.	Class III towns.	Total.	Per-			
1	2	3	4	5	6	7			
1	Cultivation			I	1	0.25			
2	Industries and Services-								
	(a) Primary Industries		••	2 + 2	4	0.99			
	(b) Processing and Manufacture	. 4	3	3	10	2.48			
	(e) Processing of metals and their produce	5	4	7	16	3.97			
	(d) Processing and manufacture not elsewhere specified.	re 18	10	3	31	7.69			
	(e) Construction and utility	11.	5	4	20	4.96			
	(f) Commerce		22	23	100	24.81			
	(g) Transport	4	10	16	30	7.45			
	(h) Health, Education and Public Administration	on 50	25	29	104	25.82			
	(i) Services not elsewhere specified	39	18	28	85	21.09			
3	Miscellaneous	dille.		2	2	0.49			
4	No occupation	SHIP		<i></i>	••	• •			
	TOTAL	186	97	120	403	100.00			

X.

ACCORDING TO DESCRIPTION OF LAST FULL-TIME EMPLOYMENT.

	Partially u	nemployed pers	ons.	·	Total of wholly and partial unemployed persons.		
Class I tow s.	Class II towns.	Class III towns	Total.	Percentage.	Number.	Percentage.	
8	9	10	11	12	13	14	
4	1	1	6	2.74	7	1.13	
1	••	6	7	3.19	11	1.77	
2	••	••	2	0.91	12	1.93	
2	1	5	8	3.65	24	3.86	
8	3	3	14	6.39	45	7.23	
4	2	5	11	5.03	31	4.98	
10	5	12	27	12.33	127	20.42	
8	3	28	39	17.81	69	11.09	
23	10	21	54	24.66	158	25.41	
23	10	18	51	23.29	136	[21.86	
• •	••	••	MARK	••	2	0.32	
••	••	••			••	••	
85	35	99	219	100.00	622	100.00	

³⁹ Lab.—27

TABLE
DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS

							Wholly unem	oloyed pers	ons.
Serial no.	Duration of in	f last ful month	ll-time emp s.	loyment	Class I towns.	Class II towns.	Class III	Tetal.	Percentage.
1			2		3	4	5	6	7
1	16		••	• •	31	6	25	62	[15.38
2	712				27	10	19	56	13.89
3	1318				9	4	6	19	4.72
4	1924			• •	16	14	16	46	11.41
5	2530			• •	7	4	4	15	3.72
6	3136		••	••	21	9	8	38	9.43
7	37 - 42			• •	2		2	4	0.99
8	43 - 48		••	• •	6	4	8	18	4.47
9	49 - 54	• •	••		1		• •	1	0.25
10	55 60	• •			8	10	15	33	8.18
11	61 66		••		1		••	1	0.25
12	67 - 72				9	1	1	11	2.73
13	73 - 78		• •		5		••	5	1.24
14	79 84			• •	5	315 6	1	12	2,98
15	85 - 90 ·	• •	• •		1		• •		• •
16	91-96		• •	• •	6	2	5	13	3,23
17	97-102		••			1		1	0.25
18	103108		••	• •	1			1	0,25
19	109-114		• •				••		.,.
20	115 - 120			• •	10	6	3	19	4.73
21	121-126	••	••	••	21	20	7	48	11.91
		То	TAL		186	97	120	403	100.00

XI.
ACCORDING TO DURATION OF THE FULL-TIME EMPLOYMENT.

	Part	tially unemploye	d persons.		Total of wholunemploy	lly and part
Class I towns.	Class II	Class III towns.	Total.	Percentage.	Number.	Percentage
8	9	10	11	12	13	14
20	5	12	37	16.89	99	15.92
12	3	18	33	15.07	89	14.32
5	1	2	8	3.65	27	4.34
5	3	16	24	10.95	70	11.25
1	1	1	3	1.37	18	2.89
8	2	12	22	10.05	60	9.65
2	••		2	0.91	6	0.97
3	3	6	12	5.48	30	4.82
	••	••			1	0.16
6	• •	7	13	5.94	46	7.39
1			1	0.46	2	0.32
4	3	8	15	6.85	26	4.18
1				0.46	6	0.96
4		3	70	3.19	19	3.05
••	••				• •	• •
1	3	4	नविश्व	3.65	21	3.38
••	1		1	0.46	2	0.32
/		1	1	0.46	2	9.32
• •		••			910	-
4	2	3	9	4.11	28	4.51
8	8	6	22	10.05	70	11.25
85	35	99	219	100.00	622	100.00

 TABLE

 DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS

no.	${f employ}_{f ment}.$			Class I towns.	Class II towns.	Class III towns.	Total.	Percentage.
1	2			3	4	5	6	7
1	Retrenchment in tempor	ary posts	••	79+9	29+5	41 + 25	188	46.65
2	Dismissal for bad condu	ct		11	5	3	19	4.71
3	Resignation due to sich	kness, dom	estic	37	19	28	84	20.84
4	reasons or low salary. Retirement	••		3	1	3	7	1.74
. 5	Loss in Business			38+3	30 + 5	17	93	23.08
6	Partition of India	• •		6	2	1	9	2.23
7	Political Movement			- TA A	1	1	1	0.25
8	Zamindari Abolition	• •		433		1	1	0.25
9	Not stated	••				••	1	0.25
J	Total	••	••	186	87+10=97	120	403	100



XII.

ACCORDING TO REASONS FOR LOSING THEIR EMPLOYMENT.

	Par		Total of wholly and part unemployed persons.			
Class I towns.	Class II towns.	Class III towns.	Total.	Percentage.	Number.	Percentage.
8	9	10	11	12	13	14
40+16	18	35+31	140	63.94	328	52.73
2	2	3	7	3.19	26	4.10
15	10	17	42 .	19.18	126	20.26
••	**	2	2	0.91	9	1.45
4+1	4	8	17	7.77	110	17.68
1		1	2	0.91	11	1.77
• •	• •	2	2	0.91	3	0.48
6	1	• •	7	3.19	8	1.29
••	••			<i></i>	1	0.16
85	35	99	219	100.00	622	100.00

यस्त्रमेव तपने

TABLE
DISTRIBUTION OF WHOLLY AND PARTIALLY AFFECTED PERSONS ACCORDING TO MONTHLY

6 (No. 1) - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	C.II 4.			Wholly unemployed persons.						
Monthly income in las in ru	ipees.	on post month		Class I towns.	Class II towns.	Class III towns.	Total.	Percentage		
		1		2	3	4	5	6		
1—50 .				82	50	62	194	48.14		
51—100 .			••	67	39	39	145	35.98		
101—150 .	•	••	••	20	5	9	34	8.44		
151—200 .	•			8	3	5	16	3.97		
201—250 .		••	••	3	••	1	4	0.99		
251—300 .	•		••	3	••	1	4	0.99		
301350 .		••		1		• •	1	0.25		
351—400 .	•	••		n in the second		• •	1	0.25		
401—450 .						••	• •	••		
451—500 .		• •	••			1	1	0.25		
501—750 .		• •	••	[1 ₁]	11	1	2	0.49		
751 and above	•	••	••			1	1	0.25		
	TOTAL	••		186	£.97	120	403	100.00		

विद्यापन अपन

XIII.
.1NCOME DRAWN IN THEIR LAST FULL-TIME EMPLOYMENT.

	Parti	ally unemployed	persons.		Total of who	olly and partiall, nployed persons.
Class I towns.	Class II towns.	Class III towns.	Total.	Percentage.	Number.	Percentage.
7	8	9	10	11	12	13
61	25	79	165	75.34	3 59	57.72
16	8	15	39	17,81	184	29.58
3	1	4	8	3.65	42	6.75
2	1	1	4	1.82	20	3.22
	• •	••	••	••	4	0.64
	• •	• •	••	••	4	0.64
		• •		L~	1	0.16
••	• •				1	0.16
1	• •		1	0.46	1	0.16
1	• •	••	1	0.46	2	0.32
1	••	• •		0.46	3	0.49
• •	••	••			1	0.16
85	35	99	1 219	100.00	622	100,00

विद्यापित अपनी

TABLE
DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS ACCORDING TO

					Wholl	y unemployed p	ersons.	
eria no.	ol Duration of period vemployment in		all∙time –	Class I towns.	Class II towns.	Class III towns.	Total.	Percentage
1	2			3	4	5	6	7
1	Up to ½ year		4.4	144	5 3	73	270	14.56
2	½ year—1 year	4.4	••	180	68	163	411	22.16
3	1 year—1½ years	***	• •	46	10	8	64	3.45
4	1½ years—2 years	• •	• •	213	63	146	422	22.75
5	2 years—2½ years	• •	••	6	3	• •	9	0.49
6	2½ years—3 years	••	••	81	44	46	171	8.22
7	3 years—3½ years	• •	••	2	4	••	в	0.32
8	3½ years—4 years	••	• •	57	36	56	149	8.03
9	4 years—5 years	••	••	37	33	25	95	5.12
10	5 years—6 years	• •	• •	26	7	27	60	3.23
11	6 years—7 years	••	• •	11	8	8	27	1.46
12	7 years—8 years	• •	• •	9	6	18	33	1.78
13	8 years—9 years .	••	• •	1	2	1	7	0.38
14	9 years—10 years	••		9	19	14	42	2.25
15	10 years and above	•••	• •	3	नपने 14	5	22	1.19
16	Not stated	••	••	67	••	••	67	3.61
	То	TAT,		895	370	590	1,855	100.00

XIV.

DURATION OF PERIOD WITHOUT FULL-TIME EMPLOYMENT.

	Partially unem	pioyed persons.			Total of who	olly and partialed persons.
Class I Towns.	Class II Towns.	Class III Towns.	Total.	Percentage.	Number.	Percentage.
8	9	10	11	12	13	14
34	2	24	60	7.46	330	12.41
27	5	40	72	8.96	483	18.16
19	••	6	8.a 25	3.11	89	3.3 5
31	16	50	97	12.06	519	19.52
7			7	0.87	16	0.60
39	11	33	83	10.32	254	9.56
••	1	4	5	0.62	11	0.41
26	17	31	74	9.20	223	8.39
22	11	24	57	7.09	152	5.72
18	16	29	63	7.84	123	4.63
5	1	12	18	2,24	45	1.68
13	16	19	48	5.97	81	3.05
4	1	••	5	0.62	12	0.45
23	24	32	79	9.83	121	4.55
24	22	15	61	7.59	83	3.12
50	• •	••	50	6.22	117	4.40
342	143	319	804	100.00	2,659	100.00

³⁹ Lab. -- 28

TABLE XV.

DISTRIBUTION OF WHOLLY AND PARTIALLY UNEMPLOYED PERSONS ACCORDING TO VARIOUS SOURCES OF MAINTENANCE DURING THEIR PERIOD OF UNEMPLOYMENT

0-1-1	NT 61.				Wholly uner	nployed persons		
Serial no.	\mathbf{Name} of subs	sistence.		Class I towns.	Class II towns.	Class III towns.	Total.	Percentage.
1	2	-444		3	4	5	6	- 7
	ng maguai sarahanahanahanah ang sesyamah angkor		4			nama imajin imaji indici y		
1	Support of the family		• •	743	339	543	1,625	87.60
2	Past Savings			33	7	6	46	2.48
3	Sale of Properties		• •	26	14	13	53	2.86
4	Agriculture			5 1	3	9	63	3.40
5	Business		• •	• •				
6	Medical	• •	• •	::	• :			
7	Loan	• •	• •	32	3	19	54	2.91
8	Tuition	• •	• •	• •		• •	• •	
9	Casual Labour	• •	• •	• •	• •	• •	• •	• •
10	Weaving	• •	• •	• •	• •	• •	• •	• •
11	Tailoring	• •	• •	• •	• •	• •	• •	• •
12	Domestic Service	• •	• •	• •	• •	• •	• •	• •
13	Cycle repair	• •	• •	io	• ;	• •	;;	
14	Not stated	••	••	10	4	• •	14	0.75
	TOTAL	• •		895 2:27	370	590	1,855	100.00

TABLE XV—concld.

Serial	Name of subsistence				Partially u	parti	Total of wholly and partially unem- ployed persons.			
no.	Mana of subsistanc	,e,	_	Class I towns.	Class II towns.	Class III towns.	Total.	Percentage.	Number.	Percentage.
1				8	9	10	11	12	13	14
1	Support of the family			41	103	93	237	29.48	1,862	70.04
$ar{2}$	Past savings			6		126	132	16.42	178	
3	Sale of Properties			8		8	16	1.99	69	$\frac{0.03}{2.59}$
4	Agriculture			7	1	27	35		98	3.69
$\frac{4}{5}$	Business			.63	2	27	92	11.44	92	3.46
6	Medical	• •		1			1	0.12	1	0.04
7	Loan	• •		25		38	63	7.84	117	4.40
8	Tuition			6			6	0	6	0.2
9	Casual Labour	• •	• •	111	• •		111	13.81	111	4.
10	Weaving	• •		38	• •	• •	38		38	1.45
11	Tailoring	• •	• •	19	• •	• •	19	2.36	19	0.71
12	Domestic Service	• •	• •	4	• •	• •	4		4	0.15
13	Cycle repair		• •	3	· ·		3	0.37	3	0.11
14	Not stated	• •	• •	10	37		47	5.85	61	2.29
	TOTAL	• •	••	342	143	319	804	100.00	2,659	100.00

TABLE XVI.

DISTRIBUTION OF PARTIALLY EMPLOYED PERSONS ACCORDING TO THE DESCRIPTION OF PARTIAL EMPLOYMENT.

a			Part	ially employed p	persons.	
Serial no.	Occupation.	Class I towns.	Class II towns.	Class III towns.	Total.	Percentage.
1	2	3	4	5	6	7
1	Cultivation	9	19	10	38	4.73
2	Industries and services -					
	(a) Primary Industries not elsewhere specified	6	• •	2	8	0.99
	(b) Processing and manufacturing of food stuff textile.	65	••	42	107	13.31
	(c) Processing and manufacturing of Motals	10		20	30	3.73
	(d) Processing and manufacturing not olsewhere specified.	26		8	34	4.23
	(e) Construction and utilities	20	49	15	84	10.45
	(f) Commerce	52	31	66	149	18.53
	(g) Transport storage & communication	20	2	36	58	7.21
	(h) Hoalth, Education & Public Administration .	14	5	29	48	5.97
	(i) Service not elsewhere specified	120	37	91	248	30.85
3	Miscellaneous livelihood		••	••	••	••
	TOTAL	342	143	319	804	100.00

TABLE XVII(A)

DISTRIBUTION SHOWING THE NUMBER OF PARTIALLY EMPLOYED PERSONS ACCORDING TO THE PERIOD DURING WHICH SUCH PARTIAL EMPLOYMENT HAS BEEN HELD.

~ .		. ,	1 13		Partial [*]	ly omployed per	sons.	
Seria no.	d Duration of parti	ai employment	neia	Class I towns.	Class II towns.	Class III towns.	Total.	Percentage,
 1	2			3	4		6	
1	Below 2 months	• •		3	21	13	3	7 12.46
2	2-4 months	••		46	12	31	8	9 29.97
3	4-6 months	••		37	12	30	7	9 26,59
	6-8 months	• •		6	1	18	2	5 8.42
5 '	8 10 months	••	• •	1	10	5	1	6 5.39
6	10-12 months	•••	••	9	10	32	ŧ	17.17
	TOTAL			102	66	129	29	7 100.00

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TABLE XVII (B).

~		•		Partially employed persons.							
erial no.	Duration of partial e	mployine n t	held. –	Class I towns.	Class II towns.	Class III towns.	Total.	Percentage.			
1	2			3	4	5	6	7			
1	Below 2 years			90	33	47	170	33,53			
2	2—4 years		• •	44	5	39	88	17.36			
3	4-6 years	• •		16	5	3 2	53	10.45			
4	6—8 years	• •	• •	20	10	3 0	60	11.83			
5	8—10 years	••		35	13	21	69	13.62			
6	10—12 years	• •	••	5	5	7	17	3.35			
7	Above 12 years	• •	• •	30	6	14	50	9.86			
	TOTAL	••		240	77	190	507	100.00			

TABLE XVIII.

DISTRIBUTION ACCORDING TO THE NUMBER OF DAYS IN A WEEK DURING WHICH FULL DAY'S OR PART DAY'S EMPLOYMENT WAS FOUND BY PARTIALLY EMPLOYED PERSONS.

no.	partial em	proyment	was neid.		Class I towns.	Class II towns.	Class III towns.	Total.	Percentage	
1		2			3	4	5	6	7	
1	One day		• •	••	5	4	3	12	1.49	
2	Two days			• •	38	40	24	102	12.69	
3	Three days			••	80	63	46	189	23.51	
4	Four days		• •	• •	58	17	55	130	16.17	
5	Five days			••	39	7	29	75	9.33	
6	Six days	• •	• •	••	49	12	62	123	15.29	
7	Seven days	• •	••	• •	73	••	100	173	21.52	

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TABLE XIX.

DISTRIBUTION OF PARTIALLY EMPLOYED PERSONS ACCORDING TO MONTHLY INCOME ACCRUING FROM PARTIAL EMPLOYEMENT.

rial	35 (71)					Partially employed persons.							
riai no.	Monthly i	ncome m	Rs.	_	Class I towns.	Class II towns.	Cass III towns.	Total.	Percentage.				
1		2			3	4	5	6	7				
1	150			••	310	130	294	734	91.29				
2	51100	••	• •	• •	20	13	20	53	6.59				
3	101—150	• •		• •	5	••	5	10	1.24				
4	151-200	• •			2	••	• •	2	0.25				
5	Above 200	• •	••		5	• •	• •	5	0.63				
	то	TAL	• •	-	342	143	319	804	100.00				



CHAPTER VIII.

Agricultural And Rural Unemployment Survey.

- 1. Reasons for the survey of Rural Unemployment by the Committee. -- As soonas the Bihar Unemployment Committee took up its work, one of the aspects on which there was almost a complete lack of data was rural unemployment and under-employment. The only data available consisted of the occupational tables of the Census of 1951 and the materials in the Agricultural Labour Enquiry Report of the Government of India of 1951. Both provided useful material to start with but they had their limitations imposed by the objectives of the collection of their data. Moreover, in the All-India Agricultural Labour Enquiry, the number of sample villages allocated to any state was small. The Committee felt that though the technique of taking out random samples of families in the sampled villages made the survey more manageable, such a survey would not present an organic and realistic picture of the village economy. It was thought that many relevant features and details of the rural economy would escape through the wide meshes of the net of this double sampling system. The Committee also felt, for the same reasons, that the collection of data should not cover a reference period of less than a year embracing all the seasons and the natural conditions of employment. Another important reason for covering all the families in the sampled villages has been that the Committee has aimed at collecting data suitable both for statistical presentation and inferences as well as for case and type studies of the rural economy. The value of case studies has been fully recognised since the pioneering survey of povorty in the city of York by Rowntree, the results of which were published in the book "Poverty" which is of classical value even now. The type studies have been considered to be very useful by the Committee because the conditions of rural economy are not standardised to the extent they are in the urban and industrial areas and vary very greatly according to the natural conditions of topography, soil, climate and rainfall. It was thus considered that while policy framing for stimulating employment in the industrial sector could be based relatively on more standardised and general data for the State or for the country as a whole on the basis of over-all statistical inferences, the diversity of conditions in the rural areas would require specific and different measures for different zones and sub-zones. It was felt that statistical generalisations could be fruitfully supplemented by throwing light on specific aspects of the problems of employment and unemployment as brought out in the case studies.
- 2. Design of the survey.—For all these reasons, a special design of survey was worked out for the Committee by Shri S. R. Bose, then Director of the Central Bureau of Economics and Statistics. The revenue thanas in the State which numbered 198 were taken as strata and villages within the revenue thanas were made the ultimate sampling units. An over-all sampling fraction of $\frac{1}{200}$ was aimed at. There were 71,378 revenue villages in the State and, therefore, a total of 357 villages was selected for the survey. Within each stratum, sampling units were allocated on consideration of both geographical area and total population. The sampling units, namely, the villages were selected with probability proportional to the total areas of units. The revenue thana maps which indicate the boundaries of the villages included in a revenue thana were used as frame. In a few cases, where thana maps were not readily available, the jurisdiction lists, which give areas of villages included in revenue than were used as frame. In one revenue thana, namely, Seraikella in Singhbhum district for which neither map nor jurisdiction list was available, units were chosen with probability proportional to the population of villages. A few of the sampled villages turned out to be uninhabited and these were replaced by substitute villages. Later on, 16 of these sampled

villages fell within the areas transferred to West Bengal, 12 in Manbhum, and 4 in Purnea, leaving 341 sampled villages under survey.

The revenue thanas were selected primarily as a matter of convenience. But it was also justified on other grounds. For example, the number of revenue thanas is fairly large so that they lend themselves to be integrated into the zones, and subzones which were the units adopted for the case and type studies.

- 3. The agency and procedure of the survey.—The work of collection of data at the primary stage was entrusted to local school teachers or Panchayat officials wherever available. In some cases, where the school or the Panchayat agency was not available, it was entrusted to an educated volunteer of the village or of a neighbouring village. In 4 villages which were very big and in which it was not possible to secure the services of the school or the Panchayat agency, we had to appoint whole-time investigators. We received very valuable co-operation from the local and district educational authorities and some of the Panchayat authorities and Block Development Officers. The primary investigators were given instructions in 4 divisional conferences convened for the purpose and postally as well as through the touring Field Supervisors who were appointed for the field work of supervising the survey.
- 4. Progress of the work.—Out of 341 sampled villages, we were compelled to drop 56 villages due either to non-availability of any suitable agency within a radius of 5 miles or inaccessibility of the villages. Another 47 villages had also to be dropped because they could not be surveyed completely. This is deplorable but it has not affected the spread of the samples among the strata except perhaps in a few districts of Chotanagpur as will appear from the statement given below showing the distribution of the sampled villages districtwise and the extent of the coverage.

TABLE 28.

Name of di	strict.	No.	o. of sampled villages.	No. of villages covered.
1			<u>.</u>	3
Patna Gaya Shahabad Muzaffarpur Darbhanga Saran Champaran Bhagalpur Saharsa Purnea Monghyr Santhal Parganas Ranchi Hazaribagh Singhbhum Dhanbad Palamau			16 24 24 23 26 21 21 12 12 21 23 25 25 26 20 7	15 22 21 17 16 17 15 10 10 17 13 22 10 7 14
Total			341	238

5. The forms of the survey.—Three schedules were prescribed for the survey, namely, Village Schedule, Family Schedule and Employment Schedule. In the Village Schedule we collected information only once during the period of the survey relating to the general economy of the village, its location, communications, population, classification of land, productive assets, cottage industries, house-crafts, production and acreage under each crop, sale and purchase of foodgrains, their consumption and other cash expenditure, wage rates, educated unemployed, educational institutions of the village etc. Similarly one Family Schedule was collected for each family living in the village only once during the period of the survey. It had two parts. The first part contained the questionnaire relating to the size and other details of each family and to the factors in the economy of each separate family like the area of land, income and its sources, expenditure and so on. Part two of the Family Schedule aimed at collecting details about each individual member of the family, as to sex, age, economic status, industrial status, and so on. The Employment Schedule related to the weekly employment of the families. In this schedule, the mandays offered by persons in the agegroup of 15-60 in each family as a whole in the village and the extent of its utilisation every week was collected. It was considered to be an impossible task to collect employment schedule of each individual in each family separately and the family as a whole was treated as the work force unit within the villages. This deprives us of our ability to establish the extent to which effective labour force was contributed by those below or above the working age-groups and also to find out separately the extent of dependency due to age, lack of employment and other causes like domestic work and so on. Thus, for every village 52 Employment Schedules were collected in course of the reference period of a complete year. The number of mandays offered by each family or of the weekly 'available mandays' was counted after deducting such number of mandays on which one or more members did not like to work or were not able to work. The duration of a working day or mandays was taken to cover the normal or customary period of work in the locality.

6. The family: Concept and number surveyed.—The group of persons having a common kitchen was considered to constitute a family irrespective of the relationship among the members. Thus a Math or Mahanthi was treated as family.

In all these sampled villages we have covered a total of 38,871 families at an average of 163 families per village. There is, however, a wide variation in the number of families in the villages in different districts. The statement given below shows the number of families surveyed in each district and the average family density of the village in the district.

TABLE 29.

Name of	district.		No. of families covered.	Average no. of families per village.
I			2	3
Patna		• • • • • • • • • • • • • • • • • • • •	3,770	251.33
Gaya			2,135	97.05
Shahabad			1,986	94.57
Muzaffarpur			3,310	194.71
Darbhanga			3,398	212.38
Saran			1,891	111.24
Champaran			4,883	325.53
Bhagalpur			1,723	172.30
Saharsa			2,978	297.80
Purnea			3,862	227.18
Monghyr			3,967	305.15
Santhal Parganas			1,185	53.86
Ranchi			1,343	134.30
Hazaribagh			217	31.00
Singhbhum			1,386	99.00
Dhanbad			378	75.60
Palamau	••	• •	459	65.57
TOTAL			38,871	163.32

7. The zones of the State.—For the purpose of allocating the samples, the revenue thana was taken as the stratum. It would be seen that, taking the State as whole, the revenue thana is a fairly small unit to be representatively distributed among the different zones and sub-zones adopted. Among the revenue thanas themselves, a proper distribution of the sample villages was secured by their allocation both according to population as well area as the adoption of one of these two factors by excluding the other would have meant a preponderant representation of the thickly populated sub-zones of the Ganga Valley plains if population alone were to be taken as the basis, or the thinly populated plateau regions if area alone were taken into account.

The entire area of the State has been divided first into the following four zones according to natural conditions:—

- (I) North Bihar Eastern Zone.—Comprising Purnea and Saharsa districts, portions of Bhagalpur district, north of the Ganga and Khagaria subdivision of Monghyr district.
- (II) North Bihar Western Zone.—Comprising the entire Tirthut Division and Begusarai sub-division of the Monghyr district.
- (III) South Bihar Non-plateau Zone.—Comprising the portions of Shahabad and Gaya districts, north of G. T. Road, Patna district, Monghyr district, south of the Ganga but excluding Jamooee sub-division, and Bhagalpur district, south of the Ganga excluding Banka sub-division.
- (IV) South Bihar Plateau zone.—It comprises entire Chotanagpur Division Santhal Parganas district, Banka and Jamooee sub-divisions and portions of Gaya and Shahabad districts south of the G. T. Road as also those of Nawadah sub-division to the south of Gaya Nawadah Road.
- 8. The Zonal and the State averages.—The compilation and tabulation of the weekly employment schedules for one complete year (52 weeks) of 238 villages (Zone I-31, Zone II-69, Zone III-54 and Zone IV-84) separately for each family is a huge affair and it has not yet been possible to complete the work. However, the data collected in all the village and the family schedules have been compiled and tabulated. The leading features as emerging out from the above data, which are provisional at present have been studied in this chapter. The figures for the four zones have been combined to represent the State average.

9. POPULATION CHARACTERISTICS.

- 9.1. The employable age-group and its sex ratio.—The employable age-group population varied from 57.89 per cent of the total population in Zone II to 59.15 per cent in Zone IV with an average of 58.41 per cent for the State. The sex ratio in this age-group varied from 93.09 in Zone III to 97.67 in Zone IV with an average of 95.78 for the State.
- 9.2. The dependent age-group.—Persons in the age-group 0—14 (children) and above 60 years of age (old persons) were treated as dependent persons. The percentage of shildren varied from 36.99 per cent in Zone III to 39.20 per cent in Zone I and that of old persons from 2.72 per cent in Zone IV to 3.91 per cent in Zone III. The corresponding figures for the State worked out at 38.27 per cent and 3.32 per cent respectively. The table on next page shows the age distribution of population in the four zones and the State separately.

TABLE 30.

PERCENTAGE DISTRIBUTION OF POPULATION BY AGE AND SEX.

		Zon	e I.	Zone	II.	Zone	III.	Zone	V.	Sta	te.	Rural Po 1951 C	pulation . ensus.
Age-grou	р.	Popula- tion.	Sex ratio.	Popula- tion.	Sex ratio.	Popula- tion.	Sex ration.	Popula- tion.	Sex ratio.	Popula- tion.	Sex ratio.	Popula- tion.	Sex ratio.
1		2	3	4	5	6	7	8	9	10	11	12	13
1560	•••	57.93	96.18	57.89	96.43	59.10	93.09	59.15	97.67	58.41	95.78	55.03	100.66
014		39.30	90.66	38.66	91.54	36.99	84.38	38.73	88.28	38.27	89.09	38.74	96.08
Above 60		2.87	165,26	3.45	188.65	3.91	150.70	2.72	138.70	3.32	165.58	6.23	105.34
All ages		100.00	95.44	100.00	96.66	100.00	91.47	100.00	99.87	100.00	94.84	100.00	99.14
Population s	size	43	,799	90	,571	55	,230	40	,413	2,30	,013		

9.3. Comparison of the survey and the Census ratios of age and sex.—A comparison of above figures with the 1951 Census figures shows some marked variations in the percentage of employable age group and of old persons. Our survey reveals that whereas 58.41 per cent and 3.32 per cent of the total population respectively were in the employable age-group and among old persons, the corresponding figures were 5.03 per cent and 6.23 per cent respectively according to 1951 Census. The differences in sex ratio in case of children and old persons are more pronounced. Whereas sex ratios for children and old persons were 96.08 and 105.34 respectively according to 1951 Census our survey placed them at 89.09 and 165.58 respectively.

10. Size of family.—An average family was found to consist of 5.92 persons. It varied from 5.40 persons in Zone I to 6.25 persons in Zone III. An average agricultural family was found to be slightly smaller than an average non-agricultural family. The average size of family according to occupation in the different zones is given in the table below.

TABLE 31. AVERAGE SIZE OF FAMILY BY OCCUPATION.

Occupa	ation.		Zone I.	Zone II.	Zone III.	Zone IV.	State.
	1		2	3	4	5	6
AGRICULTURAL FAMIL	IES		5.43	6.05	6.26	5.70	5.88
Owner Cultivator	••		5.84	6.78	6.90	5.84	6.38
Tenant Cultivator	••		5.82	6.49	6.71	5.94	6.09
Agricultural Labour	••		4.66	5.13	5.26	5.10	5.05
NON-AGRICULTURAL F	FAMILIES		5.21	6.28	6.24	5.69	6.03
Dairy and Cattle rearing	••		4.24	6.26	5.78	6.30	5.90
Industries			5.18	6.29	5.94	5.85	5. 9 5
Trade and Commerce	••		5.60	6.72	6.32	5.01	6.18
Transport			6.63	4.97	6.99	6.00	5.78
Service and Profession	••		5.10	6.26	6.34	5.73	6.04
Ave	CRAGE	٠	5.40	6.10	6.25	5.70	5.92

11. Occupational distribution of families and population.—Whereas the percentage of agricultural families varied from 66.22 in Zone III to 86.18 in Zone I, the percentage of agricultural population varied from 66.28 to 86.67 again in Zones III and I respectively. Within the zones, variations among the different eategories of agricultural families were more pronounced. Table 32 brings out the details.

TABLE 32.

PERCENTAGE DISTRIBUTON OF FAMILIES AND POPULATION BY OCCUPATION.

Occumation		Z_0	one I.	Zon	e II.	Zone	e III.	Zone	e IV.	Sta	to.
Occupation.		Fami- lies.	Popu- lation.	Fami- lies.	Population.	Fami- lies.	Popu- lation.	Fami- lies.	Popu- lation.	Fami- lies.	Popu- lation.
1		2	3	4	5	6	7	8	9	10	11
AGRICULTURAL CLASS		86.18	86.67	79.98	78.36	66.22	66.28	80.04	80.06	77.78	77.34
Owner Cultivator		40.41	43.68	42.76	47.49	35.74	39.42	61.45	62.94	44.08	47.54
Tenant Cultivator		16.47	17.74	1.97	2.10	5.14	5.52	3.31	3.46	5.96	6.14
Agricultural Labourer	• •	29.30	25.25	34.24	28.78	25.35	21.34	15.28	13.67	27.73	23.6 6
Non-agricultural Class		13.82	13.33	21.02	21.64	33.78	33.72	19.96	19.94	22.22	22.66
Dairy and Cattle rearing		0.31	0.24	0.84	0.86	2.07	1.92	0.61	0.67	0.96	0.96
Industries		2.81	2.6)	4.08	4.20	6.40	6.08	4.57	4.69	4.43	4.45
Trade and Commerce		2.89	2.99	2.92	3.22	7.11	7.19	2.34	2.06	3.76	3.93
Transport		0.10	0.12	0.78	0.64	0.79	0.89	0.25	0.27	0.55	0.53
Service and Profession	• •	7.7 l	7.28	12.40	12.72	17.41	17.66	12.19	12.25	12.52	12.79
TOTAL		100.00	100.00	100.00	100.00	2100.00	100.00	100.00	100.00	100.00	100.00
No. of families	••	8,106	••	14,842	10.	8,834		7,089		38,871	
Population			43,799	1	90,571	L	55,230		40,413	• •	2,30,013

12. Economic status.—Taking persons of all ages, it was found that the percentage of self-supporting persons varied from 30. 1 per cent (25.86 per cent males and 4.75 per cent females) in Zone II to 37.37 per cent (27.94 per cent males and 9.43 per cent females) in Zone III. The percentage of earning dependents varied from 9.37 per cent (2.79 per cent males and 6.8 per cent females) in Zone II to 17.61 per cent (5.23 per cent males and 12.38 per cent females) in Zone IV. Dependent population accounted for 48.52 per cent (22.91 per cent males and 26.61 per cent females) in Zone IV and it was as high as 60.02 per cent (22.20 per cent males and 38.82 per cent females) in Zone II. The following table gives the information in regard to the four zones separately:—

TABLE 33.

PERCENTAGE DISTRIBUTION OF POPULATION ACCORDING TO ECONOMIC STATUS.

	7	Self-	supporti	ing.	Earn	ing dep	endents.	I	epender	nts.	:	Population.	
	Zone.	Persons.	Males.	Feinales.	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.
_	1	2	3	4	5	6	7	8	9	10	11	12	13
^	I II III IV	32.73 30.61 37.37 33.87	24.82 25.86 27.94 24.13		13.37 9.37 9.95 17.61	4.71 2.79 2.28 5.23	8.66 6.58 7.67 12.33	53.90 60.02 52.68 48.52	21.64 22.20 22.10 21.91	32.26 37.82 30.67 26.61	43,790 90,571 55,230 40,413	22,411 46,055 28,846 20,738	21,388 44,516 26,384 19,675
	STATE	33.21	25.87	7.34	11.72	3.46	8.26	55.07	22.00	33.07	2,30,013	1,18,050	1,11,963

13. Economic status of employable age-group persons.—Now we propose to examine the economic status of persons in the working age-group. In this age group, the percentage of self-supporting persons varied from 51.74 per cent (43.82 per cent males and 7.92 per cent females) in Zone II to 61.21 per cent (45.74 per cent males and 15.47 per cent females) in Zone III. The percentage of earning dependents varied from 15.01 per cent (4.12 per cent males and 10.89 per cent females) in Zone II to 26.72 per cent (7.15 per cent males and 19.57 per cent females) in Zone IV. The percentage of dependent population was the lowest (18.13 per cent—4.02 per cent males and 14.11 per cent females) in Zone IV and the highest (33.25 per cent—2.98 per cent males and 30.27 per cent females) in Zone II. The following table gives the information for each zone separately:—

TABLE 34.

PERCENTAGE DISTRIBUTION OF WORKING AGE-GROUP POPULATION ACCORDING TO ECONOMIC STATUS.

	Self-	support	ing.	Earni	ng depe	ndents.	Ľ	Depende	nts.	Working ag	e-group p	opulation.
Zone.	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.
1	2	3	4	5	6	7	8	9	10	11	12	13
I II III IV	54.07 51.74 61.21 55.15	41.12 43.82 45.74 39.43	7.92 15.47	20.91 15.01 15.28 26.72	6.79 4.12 2.93 7.15	14.12 10.89 12.35 19.57	25.02 33.25 23.51 18.13	3.07 2.98 3.12 4.02		25,372 52,429 32,643 23,904	12,9 3 3 26,691 16,906 12,093	12,439 25,738 15,737 11,811
State	55.08	42.99	12.09	18.28	4.88	13.40	- 26.64	3.21	23.43	1,34,348	68,623	65,725

14. Per capita income and expenditure.—The per capita income varied from Rs. 129.65 in Zone I to Rs. 162.72 in Zone III. The per capita expenditure varied from Rs. 137.65 in Zone I to Rs. 162.72 in zone III. Taking all the zones together, the per capita income was Rs. 146.36 against the per capita expenditure of Rs. 143.59. The following table shows the details of per capita income and expenditure separately for each zone category-wise.

PER CAPITA INCOME AND PER CAPITA EXPENDITURE.

	Zone	I.	Zone	II.	Zone	III.	Zone I	v.	Sta	ate.
Categories	Income per capita. Rs.	Expenditure per capita. Rs.	Income per capita. Rs.	Expenditure per capita.	Income per capita. Rs.	Expenditure per capita. Rs.	Income per capita.	Expendi- ture per] capita. Rs.	Income per capita. Rs.	Expenditure per capita.
1	2	3	4	5	6	7	8	9	10	11
AGRICULTURAL	131.06	138.27	149.91	141.22	160.73	156.41	144.73	141,35	147.17	143.73
CLASS. Owner Culti- vator.	173.23	173.52	189.35	163.20	206.63	· 185.10	155.28	145.97	181.99	165.36
Tenant Culti-	98.73	112.07	103.24	118.84	110.26	136.15	128.79	149.15	104.80	121.85
vator. Agricultural Labour.	80.79	$\boldsymbol{95.54}$	88.22	106.58	89.52	108.63	100.18	118.11	88.21	105 .9 5
Non-agricul- Tural Clas		133.8 6	132.10	126.24	166.63	156.71	134.98	159.25	143.59	143.09
Animal Hus- bandry.	106.08	110.24	122.27	136.39	128.19	14).74	76.50	131.05	118.71	136.5
Industries	103.76	121.81	108.64	121.54	114.85	118.24	121.49	125.30	112.49	121.19
Trade and	155.57	149.48	196.48	136.14	218.54	174.93	150.59	148.49	196.01	156.2
Commerce. Transport	81.79	79.81	88.97	95.20	179.76	180.49	141.74	155.46	129.52	133.8
Service and Profession.	113.46	133.59	126.39	126.16	166.84	163.97	140.56	175.67	140.78	147.5
TOTAL	129.65	137.65	146.06	137.5	98 162.72	156.51	143.79	145.94	146.36	143.5

15. Indebtedness.—All categories of families in all the zones were found to be in debt. The percentage of indebted families was comparatively higher in North Bihar than in the South Bihar. 53.99 per cent, 51.70 per cent, 37.83 per cent and 42.11 per cent of all families were in debt in Zones I, II, III and IV respectively. The amount of debt per family varied from Rs. 67.26 in Zone IV to Rs. 112.52 in zone II with Rs. 97.10 for the State as a whole. If we consider the indebted families only we find that average debt per indebted family varied from Rs. 159.75 in Zone IV to Rs. 274.16 in Zone III with an average of Rs. 205.38 for the State. The distribution of indebted families, average debt per family and per indebted family is given in the table below:—

TABLE 36.

PERCENTAGE DISTRIBUTION OF INDEBTED FAMILIES AND AVERAGE DEBT PER FAMILY.

SI.	O.4			Zone	ı.			Zone	II.	
110.	Categories of familie	98.	Indebted	l families.	All f	amilies.	Indebted	families.	All	families.
			Percentage.	Average debt per family. Rs.	Percentage.	Average debt per family. Rs.	Percentago.	Average debt per family.	Percentage.	Average debt per family.
I	2		3	4	5	6	7	8	9	10
				Est.		-			· · · · · · · · · · · · · · · · · · ·	
1	Owner Cultivator		34.73	227.67	46.39	105.63	33.04	298.79	39.94	119.34
2	Tenant Cultivator		17.71	175.52	58.05	103.05	2.81	251.94	73.72	185.72
3	Agricultural Labour		35.28	88.87	65.01	57.77	43.59	151.65	65.82	99.81
4	Animal Husbandry		0.32	78.21	56.00	43.80	1.16	165.93	71.77	119.09
5	Industry		2.25	130.75	45.18	59.07	4.66	175.33	57.85	101.43
6	Trade and Commerce		2.01	305.0)	37.61	114.70	2.74	252.89	48.39	122.3
7	Transport	• •	0.11	85.00	62.50	53.13	0.93	315.90	61.21	193.35
8	Service and Profession	••	7.49	141.73	52.48	74.38	11,17	232.43	45.55	108.20
	TOTAL		100.00	162.02	53.90	87.49	100.00	217.64	51.70	112.52

TABLE 39-concld. Zone III. Zone IV. State. 81. Indebted families. All families. Indebted families. All families. Indebted families. All families. Percen. Average Percen- Average Average Percen-Average Percen-Percen-Average Percen-Average debt per tage. debt per tage. debt per debt per debt per tage. tage. tage. tage. debt per family. family. family. family. family. family. Rs. Rs. Rs. Rs. Rs. 1 11 12 13 17 14 15 16 18 19 20 21 221 26.21 422.04 27.75 117.11 59.53 171.72 40.79 70.05 36.50 265.11 39.15 103.78 2 8.14 297.85 59.91 178.44 4.02 141.68 5.11 72.357.53 209.70 59.69 125.17 3 38.21 162.65 57.03 4.65 52.21 92,76 16.88 112.1816.29 136.24 61.88 84.30 2.30 239.32 42.08 100.69 0.94199.82 65.12 130.12 1.13 191.76 55.47 106.36 5 6.55 195.77 38.76 75.88 191.27 35.49 67.89 3.85 4.28 177.51 45.70 81.13 6 4.13 336.59 21.97 207.94 73.96 2.18 39.16 81.42 2.73 279.27 34.27 95.70 7 0.79 446.92 37.14 166.00 0.44 145.38 72.22 105.00 0.63 316.21 54.25171.53 13.67 8 307.33 29.71 91.32 12.16 151.9542.0163.84 10.91 220.10 41.19 90.65 Total 100.00 274.7637.83 159.75 67.26 103.94 42.11 100.00 100.00 205.38 47,28 97.10

16. Migration.—A number of people of all ages were found to be living outside the sampled villages. The percentage of people living outside the villages varied from 0.80 per cent (63.32 per cent males and 36.68 per cent females) in Zone I to 2.77 per cent (90.95 per cent males and 9.05 per cent females) in Zone I. It was found that the percentage of migrants in the age-group 0—14 was generally the lowest and that in the age-group 15—60 the highest. This goes to show that people of the working age-group, particularly the males, migrate in search of employment. The percentage of male migrants of this age-group varied from 69.84 per cent in Zone IV to 93.73 per cent in Zone II. The following table gives the percentage of the migrant population in the different age-groups for the four zones separately:—

TABLE 87.

PERCENTAGE DISTRIBUTION OF MIGRANT POPULATION BY AGE AND SEX.

Zones.			0-14.			15—60.			Above 60			Total.	
Zones.		Male⊲.	Females.	Percentage.	Males.	Females. I	Percen- tage.	Males.	Females.	Percentage.	Males.	Females.	Percentage.
1		2	3	4	5	65°	1.7-	8	9	10	11	12	13
I		50.75	49.25	0,39	72.76	27.24	0.97	22.22	77.78	2.86	63.32	36.68	0.80
11		59.39	40.61	0.47	93.73	6.27	4.41	53.13	46.87	1.02	90.95	9.05	2.77
III		55.78	44.22	0.72	82.13	17.87	2.33	42.11	57.89	2.64	75.75	24.25	1.75
IV	• •	52.71	47.29	1.32	69.84	30.16	2.64	45,45	54.55	1.00	65.40	34.60	2.09
State		55.15	44.85	0.66	86.38	13.62	2.94	39.71	60.29	1.78	81.12	18.88	2.03

17. Rate of growth of population.—There is a good deal of controversy about the rate of growth of population during the present decade. Information relating to the number of living births and deaths was collected both in the Family Schedules and in the Weekly Employment Schedules. The information collected in the weekly schedules has not yet been tabulated. On the basis of information in the Family Schedules the rate of growth of population works out at 1.63 per cent, 1.28 per cent, 0.77 per cent and 1.29 per cent per annum for Zone I, Zone II, Zone III and Zone IV, respectively. For the State as a whole it works out at 1.22 per cent per annum.

18. Distribution of owned land.—We find 61.51 per cent, 73.80 per cent, 55.47 per cent and 85.12 per cent of the families surveyed in Zones I, II, III and IV, respectively to be in possession of some land. The average size of holding was 8.81 acres in Zone I, 3.69 acres in Zone II, 5.98 acres in Zone III and 5.76 acres in Zone IV. This gives an average of 5.52 acres for the State.

An examination of sizes of holdings among the families possessing land shows that the largest percentage of families in case of owner cultivators which was round about 28 per cent of the families in all the zones were in the size of 2.6 to 5.0 acres except in case of Zone III where they were in the size of 5.1 to 10.0 acres. In case of tenant cultivators the largest number of families were also in the size of 2.6 to 5.0 acres in Zones III and IV and the percentages of the families were 34.84 per cent in Zones III and 36.89 per cent in Zone IV. In the remaining two zones the largest number of families (about 35 per cent) were in possession of land up to one are only. The largest number of agricultural labours and the non-agricultural families were in

possession of land in the size of up to one acre only. The percentages of such families were 68.79 per cent, 71.76 per cent, 77.51 per cent and 53.85 per cent in Zones I, II, III and IV respectively, in case of agricultural labour families. In case of non-agricultural families the percentages were 55.03, 57.86, 46.99 and 37.30, respectively in Zones I, II, III and IV. Details of all the categories are given in the table below:—

TABLE 38.

PERCENTAGE DISTRIBUTION OF OWNED LAND BY SIZE.

SI.	Size of land -			Zone I.					Zone II.			Z	one III.
no.	holding.	Owner cultivator.	Tenant culti- vator.	Agril. labour.	Non- agril, families.	Total.	Owner culti- vator.	Tenant culti- vator.	Agril. labour	Non- agril. families.	Total.	Owner culti- vator.	Tenant culti- vator.
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Up to 1 acre	7.88	35.17	68.79	55 .03	21.86	12.80	35.23	71.76	57.86	34.32	4.47	14.45
2	1.1—2.5 acres	13.34	22.63	21.19	18.66	16.07	23.52	24.35	18.80	25.46	22.90	14.38	26.91
3	2.6-5.00 acre	26.89	27.31	7.06	15.31	24.25	29.71	26.95	7.91	11.04	21.46	27.60	34.84
4	5.1—10.00 acres.	22.61	10.55	••	5.02	-17.09	19.81	12.95	0.38	3.91	12.53	28.11	19.83
5	10.1—25.00 acres.	19.66	3.75	2,05	5.74	14.22	11.47	0.52	0.68	1.35	7.06	20.34	3.97
6	25.1-50.00 acres.	6.20	0.59	0.68	0.24	4.25	2.11	••	0.3 0	0.24	1.33	4.50	••
7	Above 50.00 acres.	3.42	••	0.23	· ·	2.26	0.58	••	0.17	0.14	0.40	0.60	
	TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 38-concld.

	Zone	III—concld.			Zone IV	7.					Stat	θ.	·
Serial no.	Agri- cultural labour.	Non- Agril. familics.	Total.	Owner culti- vator.	Tenant culti- vator.	Agri- cultural labour.	Non- agril. families	Total.	Owner culti- vator.	Tenant culti- vator.	Agril. labour.	Non- agril. families	Total.
1	15	16	17	18	19	20	21	22	23	24	25	26	27
1	77.51	46.99	19.80	7.32	12.00	53.85	37.30	16.36	8.93	27.46	69.20	51.06	25.33
2	16.87	26.10	17.84	18.96	28,89	26,42	28.20	21.38	18.73	24.63	20.07	25.49	20.37
3	5.13	16.82	24.08	29.44	36. 89	13.04	20.82	27.23	28.83	30.24	8.32	14.70	23.75
4	0.49	7.34	21.04	25.78	19.11	6.02	10.76	21.45	23.39	14.04	1.24	6.15	16.93
5	••	2,14	13.81	14.21	1.78	0.67	2.57	10.90	15.43	3.14	0.77	2.19	10.48
6		0.61	3.02	2.80	0.89	••	0.35	2.10	3.51	0.43	0.27	0.35	2.35
7	••	• •	0.41	0.78	0.44	••	••	0.58	1.18	0.06	0.13	0.06	0.79
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.0)	100.00	100.00	100.00	100.00

19. Employment in Small-Scale and Cottage Industries.—At the instance of the Small-Scale and Cottage Industries Unemployment Sub-Committee, information was collected regarding the number of persons of the working age-group engaged in the traditional village crafts, namely, pottery, carpentry, shoe-making and tanning and blacksmithy. A study of the figures collected in the village schedules shows that the average number of persons engaged in pottery, carpentry, shoe-making and tanning and blacksmithy varied from 2.97 in Zone I to 8.95 in Zone III, 1.10 in Zone I to 4.22 in Zone II, 0.43 in Zone II to 5.22 in Zone III and 1.01 in Zone IV to 6.85 in Zone III per village respectively. For the State as a whole the figures were 6.13, 2.65, 1.67 and 3.13 persons per village respectively. The following table shows the average number of persons employed in these carfes in the different zones:—

TABLE 39.
EMPLOYMENT IN COTTAGE INDUSTRIES.

			Average n	umber of person	as employed	l per vill ige.
Zon	rs.		Pottery.	Sho Carpentry.	e-making and tanning.	Blacksmithy
	1		2	3	4	5
I II III IV			2.97 8.17 8.95 3.82	4.22 3.93	1.16 0.43 5.22 0.60	3.72 6.85
State		••	6.13	2.65	1.67	3.13

20. Educated unemployed.—Information was collected for educated unemployed at the instance of the Educated Unemployment Sub-Committee. An educated person means a person who is at least a Matriculate or has obtained an equivalent qualification. The most remarkable feature about the educated unemployed is that no such person was found in any of the villages in Zone IV. In Zone III the average number of educated unemployed persons per village who were either Matriculates, Intermediates, Bachelors or Master degree-holders was on 6.76, 0.54, 0.17, 0.02, respectively per village. These figures were the maximum under any of the heads for all the zones except for Master degree-holders. The high figures for Matriculates is due to a very large number of unemployed matriculates in one village near a big railway workshop. The number of unemployed matriculates for the State was even less—than two per village. In case of persons having higher qualifications, the number was negligible. The following table shows the distributions of educated unemployed per village according to qualifications:—

TABLE 40. EDUCATED UNEMPLOYED.

		Average	number of perso	ns emplo y ed	per village
Zones.	M	atriculates.	Intermediates.	Bachelors.	Masters.
1		2	3	4	5
I II III IV	••	1.19 0.94 6.76 Nil	0.23 0.07 0.53 Nil	0.16 0.10 0.17 Nil	0.06 Nil. 0.02 Nil.
State		1.96	0.17	0.09	0.01

21. THE CASE AND TYPE STUDIES IN THE SUB-ZONE OF THE STATE.

21.1. The types which were studied.—Each Zone was divided into a number of Sub-zones because different types of economies were found within each Zone. This arrangement along with the names of villages selected for case and type studies are given below.—

I. NORTH BIHAR EASTERN ZONE.

Fertile area.—Village Champabati of Dhamdaha Revenue thana of Purnea district represents the economy of this area.

II. NORTH BIHAR WESTERN ZONE.

Fertile area. Village Bhagwanpur Kamala of Samastipur Revenue thana of Darbhanga district represents the economy of this area.

Cane producing belt.—Village Gidha of Bettiah Revenue thana of Champaran district represents this area.

III. SOUTH BIHAR NON-PLATEAU ZONE.

- (i) Canal area.—Village Ismailpur in Revenue than Arwal of Gaya district represents the economy of this area.
- (ii) Non-canal area.—Village Diawan of Hilsa Revenue thana of Patna district represents this area.

IV. SOUTH BIHAR PLATEAU ZONE.

- (i) Table land (less fertile) area.—Village Kendadih of Chas Revenue thana of Dhanbad district represents this area.
- (ii) Hilly regions near mines or factories.—Village Bishrampur of Burmu Revenue thana of Ranchi district represents the economy of this area.
- (iii) Interior mountaineous regions.—Village Sel of Chatra Revenue thana of Hazaribagh district represents this area.
 - 212. The types which could not be studid.—The case and type studies of the following sub-zones have not yet been prepared:—
 - I.—North Bihar Eastern Zone—Kosi devastated area.
 - II.—North Bihar Western Zone—(i) Low land and flood-affected area, and (ii) Tarai and Tharuhat area.
 - III.—South Bihar Non-Plateau Zone—Diara and Tal fertile area.
 - IV.—South Bihar Plateau Zone—(i) Table land (fertile) area, and (ii) Don or River Valley area.
- 21.3. The limited scope of the summary presented.—Detailed studies have been made of all the data in respect of the villages selected for the case and type studies and they are being published in a separate volume. It is proposed to summarise and interpret only the manpower, employment and un-employment data here.
- 22. Population characteritics.—The villages selected for case and type studies are not average villages, but they represent the broad economies prevalent in the different regions of the State. The number of families in the villages vary from 40 in case 39 Lab.—30

of Sel to 312 for Gidha. The size of the family varies from 5.02 (Champawati) to 6.91 (Bhagwanpur Kamala). It is noticed that the villages in the plateau regions have both a smaller number and size of families in contrast to other regions. The sex ratio (number of females for every 100 males) varies from 79.64 in case of Ismailpur to 107.14 in case of Kendadili.

The following table gives the information mentioned above separately for all the villages:—

TABLE 41.

POPULATION, SEX RATIO, SIZE OF VILLAGES AND FAMILIES.

0	NT.	C 41 211			Popu	lation.		No. of families in	Average size of
Serial no.	Name (of the vill	age	Persons.	Males.	Females.	Sex ratio.	the village.	family.
I		2		3	4	5	6	7	8
I Chan	npawati	• •		1,421	717	704	98.19	283	5.02
2 Bhag	wanpur	Kamala		1,914	986	928	94.12	277	6.91
3 Gidh	a	••		1,960	951	1,009	106.10	312	6.28
4 Isma	ilpur	••		891	496	395	79.64	153	5.82
5 Diaw	an	• •		1,299	671	625	92.73	213	6.10
6 Kend	ladih		• •	406	196	210	107.14	65	6.23
7 Bish	rampur	• •		434	230	204	88.70	80	5.43
8 Sel				220	110	110	100.00	40	5.50

From this table, it is to be noted that the number of females was less than those of males in case of 5 villages, in other two villages females exceeded males and in case of only one village they were in equal number. The average size of the family was between 5 and 6 persons in case of 4 villages, and between 6 and 7 persons in the remaining 4 villages.

23. Occupational pattern.—The source from which a particular family derived the largest part of its income was the deciding factor in fixing up its main occupation. A study of the occupational distribution of families shows that the percentage of agricultural families varied from 66.67 in Ismailpur to 97.50 in Sel indicating the preponderance of agriculture in the economy of the villages. The percentage of owner cultivator, tenant cultivator and agricultural labour families varied respectively from 20.14 in Champawati to 83.08 in Kendadih, from nil in Sel, Kendadih, Ismailpur and Gidha to 21.91 in Champawati and from nil again in Kendadih to 57.5) in Sel.

Non-agricultural families accounted for 2.50 per cent of the total number of families in Sel to 33.33 per cent in Ismailpur except in case of Bishrampur where the percentage of non-agricultural families was 77.50 due to its location in coal mining area near a big cement factory. There were no families having transport or dairy and cattle rearing as their main occupation in any of the villages. The percentages of families engaged in industry and trade and commerce varied from nil in Scl to 12.31 in Kendadih and from nil in Kendadih, Bishrampur and Sel to 9.15 in Ismailpur. Families engaged in service and profession were found, without exceptions, in all the villages and the percentage of such families varied from 1.25 in Bishrampur to

18.30 in Ismailpur. The distribution of families according to occupation in all the villages is given below:—

TABLE 42.
OCCUPATIONAL PATTERN.

3	NT EU	***		Agricult	ıral fami	lies.		Non	agricultu-	ral famil	lies.		Total of
no.	Name of the	e village.	Owner culti- vator.	Tenant culti- vator.	Agricul- tural labour.		Dairy and cattle rearing.	Industry.	Trade and comm- erce.	Trans- port.	Service and profess- sion.	Total.	tural and r on agricultural families.
1	2	`	3	4	5	6	7	8	9	10	11	12	13
1	Champawati		20.14	21.91	46.64	88.69		2.83	4.59		3.89	11.31	283
$\tilde{2}$	Bhagwanpur		39.71	5.78	36.46	81.95		7.94	1.08		9.03	18.05	
3	Gidha		68.59	••	19.23	87.82		5.45	0.96	.,	5.77	12.18	312
	Ismailpur		31.37		35,30	66,67		5.88	9.15		18.30	33.33	153
5	Diawan		35,68	0.94	39.44	76.06		4.23	7.51		12.20	23.94	213
6	Kendadih		83.08			83.08	• •	12.31			4.61	16.92	65
7	Bishrampur		12.5)	1.25	8.75	22.50		76.25	• •		1.25	77.50	80
8	Sel		40.00		57.50	97.50					2.50	2.50	40

24. Employable and employed labour force.—Persons in the age-group of 15—60 years are generally considered fit for regular normal employment. It was noticed that 53.00 per cent to 63.97 per cent of the people were in this age group. It is common knowledge that all the persons of this age-group, particularly the females, are generally not engaged in any gainful activity. The employed labour force varied from 43.94 per cent to 59.85 per cent of the total population or from 72.97 per cent to 100 per cent of the potential labour force. No less than 15 per cent of employable males were in the employment market, but a nong the famales the lowest percentage was as low as 49.88. The following table gives these percentages both for males and females separately for all the villages:—

TABLE 43.

PERCENTAGE DISTRIBUTION OF EMPLOYABLE AND EMPLOYMENT MARKET LABOUR FORCE BY SEX.

			Employabl centage of			force as per		et labour total po-	Percentage market la ployable		
Serial no.	Name of the vi	llage.	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.
1	2		3	4	5	6	7	8	9	10	11
1	Champaw. ti		61.43	30.96	30.47	44.83	29.63	15.20	72.97	95.68	49.88
2	Bhagwanpur		56.17	28.27	27.90	43.94	26.96	16.98	78.23	95.38	60.86
3	Kamala. Gidha		58.01	28.72	29.29	52.04	28.72	23.32	89.71	100.00	79.62
4	Ismailpur	••	63.97	33.33	30.64	52.52	33.11	19.41	82.10	99.33	63.37
5	Diawan		57.50	28.71	28.79	53.81	28.10	25.71	93.57	97.86	89.30
6	Kendadih	••	59.85	29.56	30.29	59.8 5	29.56	30.29	100.00	100.00	100.00
7	Bishrampur		53.00	25.81	27.19	46.78	25.81	20.97	88.26	100.00	77.12
8	Sel		57.73	29.55	28.18	57 .73	29.55	28.18	100.00	100.00	100.00

25. Intensity of employment.—Of the total mandays employed, agricultural operation were responsible for 40.86 per cent mandays in case of village Sel to 75.03 per cent in case of Champawati. For Bishrampur it was 32.82 per cent.

On the average employment offered varied from 218 days in Bhagwanper Kamala to 314 days in the year in Gidha for agricultural families and from 204 days in the year in Bhagwanpur Kamala to 335 days in Diawan for non-agricultural families. Taking the two categories of families together, i.e., the entire village it varied from 215 days in Bhagwanpur Kamala to 313 days in the year in Gidha.

Employment secured varied from 144 days in the year in Gidha to 269 days in Sel for agricultural families and 156 days in case of Gidha to 297 days in case of Diawan for non-agricultural families. Taking the village as a whole it varied from 145 days in case of Gidha to 269 days in case of Sel. Table 44 on the following page gives the above information separately for each village:—



TABLE 44.
MANDAYS OFFERED AND EMPLOYMENT SECURED.

erial	Name of the village	'	availabl	available for employment.	ment.	as .	employed.		employn	employment per person per year.		secured 1	secured per person per year.	er year.
no.			Agricul- tural Sector families.	Non-agri- cultural Sector fan ilies,	Total.	Agricultural operations (both agricultural and ton-agricultural and ton-agricultural families).	Non-agri- cultural operations hoth agricul tural and non-agri- cultural families.)	Total.	Agricul- tural families.	Non-agri- cultural families.	А vегаде.	Lgricul- tural families.	Non-agri- cultural families.	Аverage.
_	ণ	ļ.	က	4	າວ		151455°	8	6.41	10	=	21	13	14
-	Champawati	:	90.59	9.41	100	75.03	24.97	100	272.59	241.01	269.27	203.28	187.88	200.77
¢1	Bhagwanpur Kamala	:	78.54	21.46	100	69.70	30.30	100	218.25	204.33	215.10	179.88	161.13	175.65
က	Gidha	:	87.42	12.58	100	ñ0.17	49.83	100	314.33	307.10	313.40	143.55	155.86	145.13
4	Ismailpur	:	70.45	29.55	100	61.93	38.08	100	270.94	289.23	276.10	211.86	234.83	218.34
10	Diawan	· :	76.53	23.47	100	65.52	34.48	100	303.76	335.42	310.60	199.07	297.24	220.42
9	Kendadih	:	84.59	15.41	100	73.39	26.61	100	277.14	264.10	275.05	237.99	228.38	236.44
! ~	Bishrampur	· :	19.88	80.12	100	30.82	69.18	100	268.27	307.95	299.15	155.07	291.63	191.31
00	Sel	:	99.23	0.77	100	40.86	59.14	100	293.84	288.00	293.80	269.07	247.00	268.90

26. Occupational differences in the employment market labour force.—we propose to study here the variations in the percentage of employment market labour force engaged in diffurent occupations. Among the owner cultivators the percentage of employment market labour force varied from 13.04 (11.63 males and 1.41 females) in Champawati to 83.95 (42.80 males and 41.15 females) in Kendadih. The range was from nil to 18.84 for tenant cultivators, nil to 57.61 per cent for agricultural labours, nil to 76.86 per cent for industries, n'l to 9.19 per cent for trade and commerce, and 0.79 to 14.96 per cent for service and profession. There were no persons mainly engaged in transport or in dairy and cattle rearing. The details about the individual villages are given in table appended below:—

TABLE 45.

PERCENTAGE DISTRIBUTION OF EMPLOYMENT MARKET LABOUR FORCE BY OCCUPATION AND SEX.

Serial	Name of the village.		r cultivat	tor.	Tens	ant cultiv	ator.	Agric	ultural lab	our.
no.	21-110 01 010 1011901		Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1	2	3	4	5	6	7	8	9	10	11
 _	Champawati	11.63	1.41	13.04	16.64	2.20	18.84	29.67	27.94	57.61
2	Bhagwanpur Kamala	24.97	12.60	37.57	4.04	3.69	7.73	18.91	13.20	32.11
3	Gidha	39.31	28.92	68.23				9.51	9.41	18.92
4	Ismailpur	22.22	14.10	36.32			• •	20.30	15.17	35.47
5	Diawan	21.32	20.89	42.21	-0.86	0.86	1.72	18.31	16.02	34.33
6	Kendadih	42.80	41.15	83.95	24.5					
7	Bishrampur	6.40	7.39	13.79	0.49		0.98	3.45		7.39
8	Sel	22.05	21.26	43.31	1000			28.34	27.56	55.90

TABLE 45 .- contd.

Seria	l Nam of	Ani	mal Husba	ndry.	أتبدئا مانبر	Industry.		Trade	and Comme	rco.
no.		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
1	2	12	13	14	15	16	17	18	19	20
1	Champawati				2.35	0.16	2.51	2.98	0.16	3.14
2	Bhagwanpur Kamala.	• •	••	••	5.71	3.81	9.52	0.59	0.36	0.95
3	Gidha				2.16	2.74	4.90	0.69	0.6 9	1.38
4	Ismailrur				2.78	1.28	4.06	4.27	4.92	9.19
5	Diawan				2.29	1.86	4.15	3.57	3.86	7.43
6	Kendadih				4.12	6.17	10.29			
7	Bishrampur				44.34	32.52	76.86			• •
8	Se1		• •			• •				

TABLE 45 .- concld.

Seri	al Name of		Transpor	t.	Servic	e and Profes	sion.	All	categories.	
no.		Males.	Females.	Total.	Males.	Females.	Total.	Males.	Fémales.	Total.
1		21	22	23	24	25	26	27	28	29
	Champawati				2.82	2.04	4.86	66.09	33.91	. 100.00
2	Bhagwanpur Kamala.	• •	• •	• •	7.13	4.99	12.12	61.35	38.65	100.00
4	Gidha				3.53	3.04	6.57	55.20	44.80	100.00
3	Ismailpur				13.46	1.50	14.96	63.03	36.97	100.00
5	Diawan				6.87	4.29	11.16	$\boldsymbol{52.22}$	47.78	100.00
6	Kandadih				2.47	3.29	5.76	49.39	50.61	100.00
7	Bishrampur		• •	••	0.49	0.49	0.98	55.17	44.83	100.00
8	Sel				0.79		0.79	51.18	48.82	100.00

27. EMPLOYMENT AND UNEMPLOYMENT.

27.1. Seasons and seasonal factor of employment.—Agricultural operations are seasonal in character, and therefore, the intensity of employment and unemployment in the rural areas varied from season to season. We have already noticed that in almost all the villages the agricultural families accounted for by far the largest number of families. The result is obvious. We find that by far the largest number of mandays employed and mandays available for work was from the agricultural families. We shall study here the employment and unemployment position of each village in the different seasons and in the year as whole for each category of families.

For the purpose of study of employment and unemployment the year was divided into four seasons, viz., Bhadai, Agliaui, Rabi and Garma in equal duration of three months each as follows:—

Bhadai-16th June to 15th September.

Aghani-16th September to 15th December.

Rabi—16th December to 15th March.

Garma—16th March to 15th June.

Nature plays a very important role in agriculture. We mainly depend on monsoon for almost all the water required for agricultural operations though attempts are being made to reduce this dependence on nature. It so happens that at times we do not get rains in time and in required quantity. Thus there may be untimely rain or too little or too much of it. Then, again, the standing crops may be affected by cold wave and so on. All these factors have their impact on agricultural operations and thus on employment and unemployment. It is, therefore, necessary to have an idea of the particular year in which a particular case study village was surveyed. We are, therefore, giving below the year of survey of each village:—

- (1) Champawati—Year ending 1st week of June 1957.
- (2) Bhagwanpur Kamala—Year ending 1st week of November 1957.
- (3) Gidha—Year ending 1st week of July 1956.
- (4) Ismailpur-Year ending 4th week of February 1956.
- (5) Diawan—Year ending 4th week of June 1957.
- (6) Kendadih—Year ending 2nd week of May 1958.
- (7) Bishrampur—Year ending 4th week of April 1957.
- (8) Scl—Year ending 4th week of April 1956.
- 27.2. Factors determining mandays offered.—The number of mandays offered for work on a particular day in a particular season also depends to a considerable extent on whether any work will be available or not. Thus if people know that no work will be available they will possibly not offer themselves for work and will, therefore, be voluntarily unemployed. Also, weather conditions, local customs, illness, social functions, etc., are some of the important factors which influence the volume of mandays available for employment.
- 28. Employment and unemployment in the Bhadai season.—The agricultural operations in this season normally begin from the time of the first monsoon shower which we get in this State from about the middle of June from which we count this season. The major Bhadai crops are sown and harvested in this season. Also the preparation of field and transplanting of Aghani paddy, which is by far the most important crop, is done in this season.

It was noticed that all categories of families in Gidha got the least employment in this season. It was 42.77 per cent of the available mandays for owner cultivators, 39.11 per cent for agricultural labours, 44.89 for industry, 52.16 per cent for trade and commerce and 44.46 for those engaged in service and profession. Unemployment was therefore 57.23 per cent, 60.89 per cent, 55.11 per cent, 47.84 per cent and 55.54 per cent of the mandays offered for employment for the above categories of families in order. This abnormal condition was due to adverse condition prevailing in the village in the season. It appears that non-agricultural employment also was very much depressed. The conditions in Champawati was much better. All the agricultural families could secure employment for about 59 per cent of the available mandays. In case of non-agricultural families employment varied from 61 to about 64 per cent.

In case of the remaining villages the lowest employment was 69.73 per cent for owner cultivators, 67.09 per cent for tenant cultivators and 59.09 per cent for agricultural labour, all in Bishrampur. The highest employment was 92.37 per cent for owner cultivators (Kendadih), 84.37 per cent for tenant cultivators (Diawan), 93.51 per cent for agricultural labourers (Sel). Therefore, unemployment varied from 7.63 per cent to 30.27 per cent, 15.63 per cent to 32.91 per cent and 6.49 per cent to 40.91 per cent of available mandays for owner cultivators, tenant cultivators and agricultural labours, respectively in this season.

In case of non-agricultural families the lowest employment was 72.68 per cent for industry and 75.88 per cent for service and profession (Bishrampur) and 81.25 per cent of the available mandays for trade and commerce (Ismailpur). The highest employment in all these categories of families was in Diawan. It was 93.34 per cent, 94.84 per cent and 93.72 per cent, respectively of the available mandays in industry, trade and commerce and service and profession. Unemployment in these categories of families thus varied from 6.66 per cent to 27.32 per cent, 5.16 per cent to 18.75 per cent and 6.28 per cent to 24.12 per cent, respectively of the available mandays.

Summing up the above discussion we notice that employment in case of agricultural and non-agricultural families varied from 42.02 per cent to 92.94 per cent and from 45.36 per cent to 94.02 per cent of the available mandays, respectively. Taking the villages as a whole it varied from 42.45 per cent to 92.85 per cent of the available mandays. Thus unemployment varied from 7.15 to 57.55 per cent in terms of the available mandays. The relevant information for the different villages categorywise is given in the table on the next page.

TABLE 46.

EMPLOYMENT IN THE BHADAI SEASON BY OCCUPATION.

(Percentag : Employment.)

	V		Agricultural classes.	al classes.			No	Non-agricultural classes.	al classes.			
no.	no. no.	Owner cultiva-	Tenant cultiva-	Agricul- fural labour.	Total of agricultural elasses.	Dairy and cattle rearing.	Industry.	Trade and commerce.	Transport.	Service and professicn.	Total of non-agri- cultural	All classes.
-	67	က	4	5	9	1	∞	6	10	11	112	13
~	Champawati	59.82 (5,896)	58.83	58.69 (24,534)	58.88 (44.857)		64.00 (1;100)	61.63 $(2,080)$::	61.16 (1,380)	62.06 (4,560)	59.18
¢1	Bhagwanpur Kamala	87.18 (17,225)	87.90 (2,935)	86.37 (13,396)	86.92 (33,556)		85.41 (3,981)	87.46 (574)	::	88.92 (3,745)	87.13 (8,300)	86.16 (41,856)
က	Gidha	42.77 (59,184)	::	39.11 (15,271)	42.02 (74,455)		44.89 (4,482)	52.16 (1,043)	::	44.46 (5,510)	$\frac{45.36}{(11,035)}$	42.45 (85,490)
4	Ismailpur	86.99 (10,976)	::	87.17 (12,997)	87.09 (23,973)	::	75.74 (1,678)	81.25 (2,469)	::	84.99 (5,585)	82.45 (9,732)	85.75 (33,705)
πα	Diawan	90.71 (24,462)	84.37 (883)	90.71 (19,691)	90.58 (45,036)	::	93.34 (2,416)	94.84 (4,340)	::	93.72 (6,597)	94.02 (13,353)	91.37 (58,389)
•	Kendadilı	92.37 (18,285)	::	::	92.37 (18,285)	::	93.23 (2,229)	::	::	89.37 (837)	92.17 (3,066)	92.34 (21,351)
- 1	Bishrampur	69.73 (1,718)	67.09 (155)	59.09 (1,029)	65.82 $(2,902)$::	72.68 (11,576)	::	::	75.88 (170)	72.73 (11,746)	71.36 (14,648)
œ	Sel	92.22 (4,332)	::	93.51 (5,473)	92.94 (9,805)	::	::	::	::	81.71 (82)	81.71 (82)	92.85 (9,887)

Figures in brackets indicate mandays available for employment.

29. Employment and unemployment in the Aghani season.—The season begins after the close of the rainy season. The major Aghani crops are harvested during this season. The preparation of field for Rabi crops and to considerable extent their sowing too, is completed in this season.

We notice three characteristics of employment in the case and type study villages. In one village, viz., Gidha, employment was below 50 per cent of the available mandays. In Champawati, it was as high as 97.17 per cent of the available mandays. In remaining villages, it was between 60 and 90 per cent.

In the village Gidha the percentage of employment secured was 47.81 per cent of the available mandays for owner cultivators and 36.47 per cent for agricultural labourers. The non-agricultural families could secure employment for about 47 per cent of the available mandays in this village.

In case of Champawati the owner cultivators, tenant cultivators and agricultural labours were employed for 96.80 per cent, 97.36 per cent and 97.50 per cent respectively of the mandays available. Employment for non-agricultural families varied from 93.06 per cent to 97.37 per cent of the available mandays.

Looking into the remaining villages, we find the variations in employment to range from 56.14 per cent (Diawan) to 87.87 per cent (Sel), 53.88 per cent (Diawan) to 76.81 per cent (Bhagwanpur Kamala) and 54.00 per cent (Diawan) to 89.66 per cent (Sel) of the available mandays for owner cultivators, tenant cultivators and agricultural labours respectively. The corresponding figures for those engaged in industry, trade and commerce and service and profession varied respectively from 65.35 per cent (Bishrampur) to 89.56 per cent (Diawan), 81.29 per cent (Bhagwanpur Kamala) to 89.77 per cent (Diawan) and 69.38 per cent (Kendadih) to 92.71 per cent (Diawan).

Summing up the above we notice that the employment in case of agricultural and non-agricultural families varied respectively from 45.42 per cent (Gidha) to 97.36 per cent (Champawati) and 47.49 per cent (Gidha) to 95.40 per cent (Champawati) of the available mandays. Taking the villages as a whole it varied from 45.68 per cent (Gidha) to 97.17 per cent (Champawati) of the available mandays. Thus unemployment varied from 2.83 per cent to 54.32 per cent of the mandays available for employment. The relevant information for different villages categorywise is given in the table on the next page:—

TABLE 47.

EMPLOYMENT IN THE AGAHANI SEASON BY OCCUPATION.

(Percentage Employment.)

no.				Agri	Agricultural classes.	lasses.				Aon-agneman classes				;
		Name of the vulage.		Owner cultivator.	Tenant culti-	Agricultural	Total of agri- cultural	Total of Dairy and agrie cattle cultural rearing.	Indus- try.	Trade and com-	Trans- port.	Service and pro- fession.	Total of non-agri- cultural classes.	All classes.
		2		ဗ	4	ō	9	7	œ	6	10	11	12	13
-	Champawati	:	:	96.80 (5,217)	97.36	97.10	97.36		97.24 (1,088)	93.06 (1,786)	::	97.37 (1,104)	95.40 (3,978)	97.17
c 3	Bhagwanpur Kamala	Kamala	:	77.43 (18,404)	76.81 (3,519)	78.54 (15,671)	77.83 (37,684)		79.83 (5,166)	81.29 (604)	::	79.19 $(5,017)$	79.61 (10,787)	70.23 $(48,471)$
က	Gidha	i	:	47.81 (54,369)	::	36.47	45.42 (68,886)		51.15 $(4,158)$	49.02 (665)	::	44.24 (4,993)	47.49 (9,816)	45.68 (78,702)
4	Ismailpur	:	:	63.12 (9,591)	::	64.83	64.10 (22,336)) ::	82.53 (1,729)	83.97 (2,040)	::	70.42 $(5,582)$	75.62 (9,351)	67.50 $(31,687)$
10	Diawan	:	:	56.14 (22,964)	53.88 (696)	54.00 (18,674)	55.16 (42,334)	::	89.36 (2,376)	89.77 (4,195)	÷:	92.71 (6,588)	$91.21 \\ (13,159)$	63.71 $(55,493)$
9	Kendadih	:	:	79.82 (16,102)	:	:	79.82 (16,102)	:	74.19 (1,891)	:	:	69.38 (258)	73.62 (2,149)	79.09 (18,251)
~	Bishrampur	:	:	61.73 (1,764)	62.82 (156)	60.00 $(1,000)$	61.29 (2,920)	:	65.35 (11,455)	:	:	71.90	65.44 (11,608)	64.59 (14,528)
œ	Sel	:	:	87.87 (4,535)	:	89.66 (5,289)	88.83 (9,824)	:	:	:	;	88.31 (77)	. 88.31 (77)	88.83 (9,901)

(Figures in brackets indicate mandays available for employment.)

30. Employment and unemployment in the Rabi season.—The Aghani crops still standing in the fields are harvested during this season and all operations in connection with Rabi crops except their sowing are carried on in this season. To a certain extent the fields are prepared for the Garma season also in this season.

Employment secured in this season was generally at a higher level than in the previous season. In only one case, viz., in Gidha employment secured was less than 50 per cent (it was actually 45.12 per cent) of the total number of mandays available for employment. In the village Sel, employment was as high as 98.10 per cent of the available mandays. In another village, viz., Ismailpur, it was also above 90 per cent, the actual figure being 95.42 per cent of the available mandays.

In Gidha employment varied from 23.98 per cent for agricultural labours to 48.98 per cent for owner cultivators with an average of 43.87 per cent for all agricultural families. For non-agricultural families it varied from 49.89 per cent to 59.77 per cent with an average of 54.14 per cent of the available mandays. The general condition of agricultural families in Bishrampur was almost similar to that of Gidha but employment secured varied from 25.00 per cent for tenant cultivators to 52.81 per cent for agricultural labours. In this latter case the non-agricultural families got employment for 62.47 per cent of the available mandays having 62.73 per cent and 40 per cent respectively for those engaged in industries and service and profession. The overall employment in this village was 59.26 per cent of the available mandays.

As regards the remaining villages employment secured varied from 61.11 per cent (Diawan) to 97.22 per cent (Sel), 56.29 per cent (Diawan) to 86.15 per cent (Champawati) and 60.39 per cent (Diawan) to 98.53 per cent (Sel) of the available mandays in case of owner cultivators, tenant cultivators and agricultural labours respectively. In respect of non-agricultural families it varied from 57.37 per cent (Bhagwanpur Kamala) to 98.15 per cent (Ismailpur), 77.80 per cent (Bhagwanpur Kamala) to 98.72 per cent (Ismailpur) and from 79.48 per cent (Bhagwanpur Kamala) to 98.27 per cent (Kendadih) of the available mandays in case of families engaged in industry, trade and commerce and service and profession respectively.

Taking into consideration the agricultural and non-agricultural families separately except those in Gidha and Bishrampur, we find that employment varied from 60.71 per cent (Diawan) to 98.17 per cent (Sel) and 68.51 per cent (Bhagwanpur Kamala) to 95.88 per cent (Ismailpur) respectively. For the villages as a whole it varied from 66.67 per cent (Diawan) to 98.10 per cent (Sel). Thus overall unemployment varies from 1.90 per cent to 33.33 per cent of the available mandays. A table showing the position with regard to each village categorywise is given on the next page:—

TABLE 48.

EMPLOYMENT IN THE RABI SEASON BY OCCUPATION.

(Percentage Employment.)

Name of the village					V	Agricultural classes.	classes.		•	Ä	Non-agricultural classes	ıral classe	zi.		
2 3 4 5 6 7 8 9 10 11 12 Champawati 87.33 86.15 81.70 85.33 99 10 11 12 Bhagwanpur Kamela 87.34 10,573 (19,380) (34,684) 75.34 77.80 79.48 87.25 Gidha 82.63 7.549 (35,700) (5,649) (536) 79.48 88.51 Gidha 48.38 48.38 48.38 54.14 88.51 Ismailpur (57,602) (724,622) (724	no.		if the villag	• •	Owner cultivator.	Tenant culti- vator.	Agricultunal	Total of agricultural classes.	Dairy and cattle rearing.	Indus- try.	Trade and com- merce.	Trans- port.	Service and pro- fession.	Total of non-agri- cultural classes.	All classes.
Champawati 87.34 86.15 81.70 83.53 89.45 87.34 87.34 87.35 89.45 87.35 89.45 89.45 89.45 89.46 89.46 89.46 89.46 89.47 89.48 89.48 89.48 89.48 89.48 89.49 17.849 18.489	1-1		α		8	4	٥.	9	7	∞	6	10	11	151	13
Bhagwanpur Kamela 82.63 80.80 75.54 75.24 75.80 77.80 77.80 77.80 77.80 77.80 77.80 77.81 77.80 77.81 77.80 77.80 77.40 77.80 77.80 77.70 77.80 77.71 77.80 77.71 77.80 77.71 77.80 77.71 77.80 77.71 77.80 77.71 77.80 77.71 77.80 77.71 77.80 77.71 77.81 77.72 77.80 77.72	H	Champawati	:	:	87.38 (4,731)	86.15 (10,573)	81.70	83.53 (34,684)		91.19	83.50 (1,679)	:	89.45 (1,081)	87.25 (3,748)	$84.16 \\ (38, 432)$
Gidha 48.98 (57,602) 48.98 (14,372) 48.98 (4,373) 48.98 (4,373) 49.89 (4,373) 59.77 (10,033) 49.89 (4,373) 49.89 (4,373) 49.89 (4,373) 49.89 (4,373) 49.89 (4,373) 49.89 (4,373) 49.89 (4,373) 94.03 (4,323) 95.83 94.03 (4,323) 95.83 94.03 (4,323) 95.81 94.03 (4,323) 95.81 94.03 (4,146) 94.03 (4,146) 95.83 85.81 85.61 93.16 93.16 93.16 93.16 93.16 93.16 93.16 93.23 93.23 93.23 93.23 93.23 94.00 94.37 94.00 <th< td=""><td>C3</td><td>Bhagwanpur</td><td>. Kamala</td><td>:</td><td>82.63 (17,552)</td><td>80.80 (3,859)</td><td>75.54 (17,349)</td><td>79.28 (38,760)</td><td></td><td>57.37 (5,649)</td><td>77.80 (536)</td><td>:</td><td>79.48 $(5,282)$</td><td>68.51 (11,467)</td><td>76.82 (50,227)</td></th<>	C3	Bhagwanpur	. Kamala	:	82.63 (17,552)	80.80 (3,859)	75.54 (17,349)	79.28 (38,760)		57.37 (5,649)	77.80 (536)	:	79.48 $(5,282)$	68.51 (11,467)	76.82 (50,227)
Ismailpur 93.14 (13,024) 95.23 (1,729) 98.15 (2,428) 94.03 (2,428) 94.03 (2,428) 94.03 (2,428) 94.03 (2,428) 95.27 (2,428) 95.27 (2,428) 95.24 (2,528) 95.24 (2,528) <t< td=""><td>က</td><td>Gidha</td><td>:</td><td>:</td><td>48.98 (57,662)</td><td>:</td><td>23.93 (14,970)</td><td>43.87 (72,452)</td><td></td><td>57.88 (4,373)</td><td>59.77 (783)</td><td>:</td><td>49.89 (4,877)</td><td>54.14 (10,033)</td><td>45.12 (82,485)</td></t<>	က	Gidha	:	:	48.98 (57,662)	:	23.93 (14,970)	43.87 (72,452)		57.88 (4,373)	59.77 (783)	:	49.89 (4,877)	54.14 (10,033)	45.12 (82,485)
Diawan 61.11 56.29 60.39 60.71 87.34 89.89 82.33 85.61 Kendadih (10,024)	4	Ismailpur	;	:	93.14 (10,987)	:	97.00 (13,024)	95.23 (24,011)	:	98.15 (1,729)	98.72 (2,428)	:	94.03 $(5,827)$	95.88	95.42 (33,995)
Kendadih 84.77 84.77 93.52 93.52 93.52 Bishrampur 44.62 25.00 52.81 46.37 62.73 40.00 62.47 Sel 98.53 98.17 11,207 89.23 89.23 Sel (6,005) (8,306) (8,306) 89.23 89.23	10	Diawan	:	:	61.11 (22,668)	56.29 (700)	60.39 (18,281)	60.71 $(41,649)$:	87.34 (2,330)	89.89 (4,146)	:	82.33 (6,613)	85.61 (13,089)	66.67 (54,738)
Bishrampur	9		:	:	84.77 (10,024)	:	:	84.77 (10,024)	:	93.16 $(2,265)$;	:	98.27 (173)	93.52 (2,438)	86.48 (12,462)
Sel 97.22 98.53 98.17 89.23 89.23 89.23 (5,005) (8,306) (8,306) (6,005)	-	Bishrampur	;	:	44.62 (1,690)	25.00 (156)	52.81 (997)	$\frac{46.37}{(2,823)}$:	62.73 (11,207)	:	:	40.00 (130)	62.47 (11,337)	59.26 (14,160)
	œ	Sel	:	:	97.22 (2,301)	:	98.53 (6,005)	98.17 (8,306)	:	:	:	:	89.23 (65)	89.23 (65)	98.10 (8,371)

(Figures in brackets indicate mandays available for employment.)

31. Employment and unemployment in the Garma season.—This is normally a slack season from the point of view of agricultural employment. This is the concluding season of our agricultural year and there is not much work in the field to be done. Thus this is a season in which the agriculturists take, or to be more exact, are forced to take rest. Also during this season the majority of marriages are solemnised in the country and the rural folk are not available for work on this score also.

Of all seasons, Gidha registered the highest percentage of employment in this season which varied from 52.25 per cent of the available mandays for agricultural families to 56.90 per cent for non-agricultural families with an average of 52.85 per cent for the village as a whole. In the village Diawan the agricultural families could secure employment for only 52.40 per cent of the available mandays. This was made up to some extent by the employment secured by the non-agricultural families who secured employment for 82.93 per cent of the available mandays, pushing up the general average employment for the village as a whole to 59.55 per cent of the available mandays.

As regards the other villages employment secured varied from 57.67 per cent (Bishrampur) to 92.2) per cent (Bhagwanpur Kamala), 60.47 per cent (Bishrampur) to 84.99 per cent (Bhagwanpur Kamala) and 55.61 per cent (Champawati) to 88.48 per cent (Sel) respectively of the available mandays in case of owner cultivators, tenant cultivators and agricultural labourers. For families engaged in non-agricultural pursuits it varied from 61.89 per cent (Bishrampur) to 82.58 per cent (Bhagwanpur Kamala), 68.49 per cent (Ismailpur) to 80.95 per cent (Bhagwanpur Kamala) and 58.13 per cent (Bishrampur) to 85.78 per cent (Bhagwanpur Kamala) of the available mandays in case of families engaged in industry, trade and commerce and service and profession respectively. Thus in all these latter industries Bhagwanpur Kamala, could give the greatest percentage of employment. Employment for agricultural and non-agricultural families ranged from 57.54 per cent to 87.02 per cent and from 61.85 per cent to 84.38 per cent of the available mandays.

Taking all the agricultural families together employment varied from 52.25 per cent (Gidha) to 87.02 per cent (Sel) of the available mandays. Thus unemployment varied from 12.98 per cent to 47.75 per cent of the available mandays. In case of non-agricultural families unemployment varied from 15.62 per cent (Sel) to 43.10 per cent (Gidha) of the available mandays. For the villages as a whole unemployment varied from 13 per cent (Sel) to 47.15 per cent (Gidha) of the available mandays. The details of employment and unemployment for each village are given in the table on the next page —

TABLE 49. EMPLOYMENT IN THE GARMA SEASON BY OCCUPATION.

(Percentage Employment.)

[,	F			Agricultu	Agricultural classes.			Non	Non-agricultural classes.	classes.			
no.	TABILIC OT	маше от ушаве.	i	Owner cultivator.	Tenant culti- vator.	Agricul- turat labour.	Total of agricultura classes.	Dairy and cattle rearing.	Indus- try.	Trade and com-	Trans.	Service and pro- fession.	Total of non-agricultural classes.	classes.
-		23		8.	4	5	9	7	x	6	10	l II	12	13
-	Champawati	:	:	73.46 (4,815)	62.04 (11,535)	55.61 (21,062)	59.89		70.11 (1,027)	69.72 (1,694)	:	69.41 (1,141)	69.73 (3,862)	60.81 $(41,274)$
61	Bhagwanpur Kamala	:	:	92.29 (15,478)	84.99 (3,138)	81.17 (13,463)	86.91 (32,079)		82.58 (3,995)	80.95 (546)	:	85.78 (3,727)	$83.91 \\ (8,268)$	86.29 (40,347)
es .	Gidha	;	:	54.65 $(50,657)$:	(12,988)	52.25 (6 3. 645)		56.61 (4.222)	67.52 (739)	:	55.48 $(4,385)$. 56.90 (9,346)	52.85 (72,991)
4	Ismailpur	:	:	62.63 (8,745)	:	63.88 (11,970)	63.35 $(20,715)$	3 :	75.42 (1,729)	68.49 (1,955)	:	67.92 $(5,427)$	69.47 (9,111)	65.22 $(29,826)$
5	Diawan	:	:	53.70 (19,939)	50.59 (597)	50.90 (16,602)	52.40 (37,138)	:	86.02 (2.146)	84.35 (3,732)	:	80.74 (5,475)	82.93 (11,353)	59.55 (48,491)
9	Kandadih	:	:	85.04 (12,125)	:	:	85.04 (12,125)	:	$81.23 \\ (2,270)$:	: .	99.47	83.83 (2.647)	84.82 (14,772)
7 E	Bishrampur	:	:	57.67 (2,100)	60.47 (172)	56.88 (1,155)	57.54 (3,427)	:	61.89 (13,805)	:	:	53.13 (160)	61.85 (13,965)	61.00 (17,392)
∞ ∞	Sel	:	:	84.35 (3.220)	:	88.48 (5,869)	87.02 (9.089)	:	:	:	:	84.38 (64)	84.38 (64)	87.00 (9,153)
							•							

(Figures in brackets indicate mandays available for employment.)

32. Total employment and unemployment.—We will now close this chapter after discussing the employment and unemployment situation obtaining in the villages on an yearly basis. It appears that the overall employment situation in village Gidha was very unsatisfactory. The villagers could get employment for only 46.31 per cent of the available mandays. Thus for 53.69 per cent, i.e., more than half the available mandays there was no employment. For agricultural families uncomployment varied from 51.67 per cent for owner cultivators to 64.59 per cent for agricultural labours with an average of 54.33 per cent for all the agricultural families. The position with regard to the non-agricultural families was slightly better. It varied from 43.13 per cent of the total mandays available for those engaged in trade and commerce to 51.81 per cent for those engaged in service and profession with 49.25 per cent for non-agricultural families as a whole.

The employment position in the village Sel showed altogether a different picture. In this case the total employment was 91.53 per cent of the available mandays, with 91.57 per cent for agricultural families and 85.76 per cent for non-agricultural families. In case of agricultural families it varied from 89.89 per cent for owner cultivators to 92.64 per cent for agricultural labourers, and it was 85.76 per cent of the available mandays for those engaged in service and profession. Thus in no category of agricultural families was unemployment more than 11 per cent of the available mandays. For non-agricultural families it was about 14 per cent.

In case of the remaining villages employment varied from 57.80 per cent of the available mandays in case of Bishrampur to 85.87 per cent for Kendadih in case of agricultural families. For non-agricultural families it varied from 65.48 per cent again in case of Bishrampur to 88.67 per cent in Diawan. Taking all categories together employment varied from 63.95 per cent of the available mandays in Bishrampur to 85.97 per cent in Kendadih. Thus unemployment varied from 14.03 per cent to 36.05 per cent of the available mandays for villages as a whole and from 14.13 per cent to 42.20 per cent for agricultural and from 11.37 per cent to 34.52 per cent for non-agricultural families.

Summing up we notice that employment in the agricultural sector varied from 48.33 per cent (Gidha) to 89.89 per cent (Sel) of available mandays for owner cultivators, 53.99 per cent (Bishrampur) to 82.28 per cent (Bhagwanpur Kamala) for tenant cultivators and from 35.41 per cent (Gidha) to 92.64 per cent (Sel) for agricultural labourers. For agricultural families as a group employment varied from 45.67 per cent (Gidha) to 91.57 per cent (Sel) of the available mandays. Thus for these families unemployment varied from 8.43 per cent to 54.33 per cent of the available mandays. In case of non-agricultural families employment secured varied from 52.54 per cent to 89.17 per cent for those engaged in industry, from 56.87 per cent to 89.91 per cent for trade and commerce and from 48.19 per cent to 89.48 per cent for service and profession of the available mandays. Taking these families alone employment varied from 50.75 per cent to 88.67 per cent of the available mandays or unemployment varied from 11.33 per cent to 49.25 per cent of the available mandays. For the villages as a whole employment varied from 46.31 per cent to 91.53 per cent of the available mandays. That is, unemployment varied from 8.47 per cent to 53.69 per cent of the available mandays. A table showing the position of all the categories of families in the different villages will be found on the next page: —

TABLE 50.

TOTAL EMPLOYMENT OF ALL THE SEASONS.

(Percentage Employment.)

			Agricult	Agricultural classes.			×	Non-agricultural classes.	al classes.				
Serial no.	Name of the village.	Owner culti- vator.	Tenant culti- vator.	Agril. Isbour.	Total of agricultural	Dairy and cattle rearing.	Indus- try.	Trade and com- moree.	Trans-	Service and pro- fession.	Total of non- agril.	1	All classes.
-		65	-4	2	9		8	6	10				20
1	Champawati	78.65 (20,659)	74.º6 (48,299)	72.73	74.21	:	89.49 (4,203)	76.35	:	78.16 (4,706)		77.15	74.56 (1,71,523)
લ	Bhagalpur Kamala	84.56 (68,659)	82.28 (13,451)	\$0.01 (59,969)	82.42 (1,42,079)		74.84	81.95 (2,260)	::	82.71 (17,771)		78.86 (38,822)	\$1.66 (1,80,991)
က	Gidha	48.33 (2,21,872)	:	35.41 (57,566)	45.67 (2,79,438)		52.54 (17,235)	56.87	:	48.19 (19,765)		50.75 (40,230)	46.31 (3,10,668)
4	Ismailpur	. 77.70 (40,299)	:	75.59 (50,736)	7819 (91,035)	:	8:.02 (6,865)	83.84 (8,892)	:	7.7.58	~	81.19 (38,178)	79.08 (1,29,213)
រជ	Diawan	. 66.24 (90,033)	63.14	64.76	65.5₹ (1,66,157)	:	89.17 (9,268)	89.91 (16,413)	:	87.68 (25,273)		88.67 (50,954)	70.57 (2.17,111)
9	Kandadih	(56,536)	:	•	85.87 (56 536)	:	85.99 (8,655)	:	:	(1,5)	89.48 (1,645) (10	86.48 (10,300)	85.97 (66,836)
t•	Bishrampur	. 58.47 (7,272)	, 53.99) (639)) 57.23) (4,161)	57 80 (12 072)	:	65.51 (48,043)	:	:	619)	62.64 (613) (±8)	65.48 (48,656)	63.95 (60,728)
∞	Sel	. 89.89 (14,388)	:	92.64 $(22,636)$	91.57 (37,024)	•	:	:	:	ώ [:]	85.76 (288)	85.76 (288)	91.53 $(37,312)$
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(Figures in brackets indicate mandays available for employment.)

CHAPTER IX.

Employment Potentials of the Primary or Basic Sector and Subsidiary Measures of Rural Unemployment Relief.

- A. GENERAL PROBLEMS OF RURAL UNEMPLOYMENT AND THE METHODS OF MASS, Relief and Marginal Employment.
- 1. The lines of approach in estimating employment potentials.—In this chapter and in the succeeding ones we are proceeding to examine the employment potentials in the different sectors of our economy both as a result of the development of the economy and in so far as they may be created by special measures. The classification of the sectors, therefore, requires explanation. The method of classifying the active population in the livelihood tables of the Census of 1951 has been to divide it first into the agricultural and the non-agricultural classes, each subdivided into 4 subclasses. The first 4 sub-classes give the details of persons engaged in agriculture or connected with cultivation including animal husbandry subsidiary to agriculture but excluding persons engaged in cattle-breeding, fishing, etc. The next 4 classes consist of persons engaged in production other than cultivation, commerce, transport and other services along with those in miscellaneous sources of livelihood. Thereafter the Census tables adopt a more detailed classification of the economically active population and divide the four non-agricultural classes on a different principle into ten Divisions further subdivided unevenly into eighty-eight subdivisions. For certain purposes, this system would have been more useful for our employment studies. But the usual periodical and annual or special returns from the industrial units or those collected and compiled by the departments of the Government of the states or the Union are not available according to the Census classification. Hence, we have to adopt a system of classification for which continuous statistical details are available. The broadest classification of economic activities would divide them into three large categories as
 - (i) the Primary or the Basic sector concerned with the exploitation of natural resources on land or underground;
 - (ii) the Secondary sector which includes the processing and manufacture of the raw materials;
 - (iii) the Tertiary sector which includes the activities arising out of the last two categories as ancillary, derived, feeder and complementary to the former.

These are very useful broad categories which may be subdivided further for the purpose of analysis and calculations. It would be possible to fit into them the classification of the Census subdivisions fairly satisfactorily.

- 2. The contents of the primary or basic sector.—In the primary or basic sector we consider all those economic activities and occupations which arise out of the exploitation of the natural resources by utilising the land surface and by extracting the underground resources. Looked from another point of view, this sector is the basic one for providing not only the food resources but also the raw materials for (i) the agriculture and forestry-based as well as for (ii) the mineral based industries in the secondary sector. Thus this sector includes
 - (a) Utilisation of surface resources—
 - (i) Agriculture including gardening and forest farm or arboriculture.
 - (ii) Plantation (Subdivision 0.3 of the Census).

- (iii) Animal husbandry (Subdivision 0.1 of the Census).
- (iv) Fishing (Subdivision 0.6 of the Census).
- (v) Hunting (Subdivision 0.5 of the Census).
- (vi) Rearing of small animals and insects like poultry, bees, silk-worm, etc. (Subdivision 0.2 of the Census).
- (vii) Forestry (Subdivision 0.4 of the Census which includes wood-cutting).

(b) Extractive industries—

(viii) Mining and quarrying which is Division 1 of the Consus divided into 7 Subdivisions of non-metallic mining (1.0), Coalmining (1.1), iron-ore mining (1.2), metal mining except iron-ore (1.3), crude petroleum and natural gas (1.4), stone quarrying, clay and sand pits (1.5), mica (1.6), salt, salt-petre and saline substances (1.7).

In view of the large redundant rural population on land we have considered in this connection various other measures for the employment of the rural population. The various sub-sectors of the primary sector have, thereafter, been examined in the order convenient for consideration from our special point of view of employment.

- 3. The limited aspects of the primary sector which we are considering in this report.—
 It is neither possible nor required of this Committee, to go into all the aspects of this sector, and we are confining ourselves only to their employment values. For this purpose the Committee has explored the avenues for employment in this sector which exist, which would grow as a result of economic development along with those which may be purposely created. It has been kept in view that some of the measures recommended arc of a palliative nature to enable us to tide over the hardships of a backward and of a transitional economy. They have been designated as measures of mass employment, relief employment and marginal self-employments. These cross categories from the employment point of view would be found in the secondary as well as in the tertiary sectors.
- 4. The redundant population on land and the measures for finding gainful and productive employment for it. In another chapter we have calculated the redundant population on land to have been about 49 lakh in the Census year 1951. The position would be about the same by 1953 if we offset the transfer of the proportionate redundant population to West Bengal against the natural increase in the working force up to that year. It is roughly estimated that increase in population wou'd mean an addition the seven years from 1953 to 1959. of about 5.50 lakh persons during This gives us a total of about 49.78 lakhs. It is estimated that the second plan period, 6.5 lakh jobs would be created. We may also allow for a certain percentage to migrate to urban areas. It is not quite clear if this magnitude of the new jobs includes the number in the sphere for self-employment in commerce and servicing. However, even taking an optimistic view of the expansion in the secondary and tertiary sectors, we have got to frame a policy and devise for large additional employments in the primary sector. It is for this reason that purposeful and deliberate measures for unemployment relief become important.
- 5. The normal shift of the farm population to non-agricultural occupations.—Economic growth always tends to transfer farm population to non-agricultural occupations for the reasons given below:—
 - (a) With economic growth, the structure of demand and consumption of consumer and producer goods tends to get more diversified and to increase in volume. Hence, labour is attracted to new channels of production.

- (b) Economic growth also means a continuous absolute increase in the capital goods to aid production per worker which leads to a continuous increase in the marginal productivity of labour and of the wage rate in industry. This tendency attracts labour to industries from agriculture.
- (c) Technological progress, however, affects agriculture too. Progress in chemistry, biology and engineering enables the same area of land to produce more and more, and the productivity of each farm-hard also increases. The rosult is that a growing number of farm-hands are released from farming occupations and are absorbed in industry, commerce and service. In this way we find that whereas in 1905 one American farm-hand could produce food for only 7, to-day he produces for 15. In England, there are 25 farm-hands to manage every 1,000 acres and production per farm-hand is 17 tons. On the continent, with a larger density of farm population, production per farm-hand comes to only 10 tons. The percentage of the occupied or economically active population in agriculture decreased in Great Britain from over 12 per cent in 1881 to 5.69 in 1931, and to 5 per cent after 1940; in Germany from 42.2 per cent in 1881 to 28.9 per cent in 1921; in France from 42.37 per cent in 1882 to 34.50 per cent in 1921, and even in Japan from 80 per cent in 1870 to 48 per cent in 1930.
- (d) With every increase in income per capita, which increases both the capacity to consume and to save and invest, very large demand is created for numerous kinds of services of transport workers, wholesalers, bankers, retailers, teachers, artists, caterers, etc. This leads to a large number of people engaged in farming or farm labour to shift to these lines.
- (e) Economic growth has also gone hand in hand with the expansion of the functions of the state and a corresponding increase in the number of people engaged in administration.

We, therefore, expect that in course of the normal growth of our economy, which has been quite rapid during the last three to five years, some of our redundant population on land has been, and would be further absorbed in the non-agricultural sector.

- 6. Emigration to other States as a Method of Easing the Pressure of Rural Unemployment.
- 6.1. The nature of the emigration.—Economic growth in every aspect imparts mobility to the population in varying forms and degrees. In Bihar the trend of migration from rural areas to urban centres has already been noted. Then there are interdistrict migrations, sometimes for seasonal agricultural operations and sometimes for longer periods to mining and industrial areas. As distinguished from inter-district movements, there is the migration of a far larger number going to other states, and Bihar sent out more emigrants to places outside the State than any other State of India in 1951. The external emigration exceeded inter-district movement of population by almost forty per cent in 1951. One marked feature of the migration, whether inter-district or outside the State, is that the emigrants do not leave their homes for good. Next, it is only in a very limited number of cases that the emigrants go out, even seasonally, in family units. In most cases they go out for a season, for a year or for some longer periods, but their roots in their old villages remain.
- 6.2. The volume and directions of the migration.—The Census of 1951 showed that the emigrants from Bihar numbered 15.73 lakh as against 5.62 lakhs of imigrants coming from outside. This inter-state mobility of population is likely to grow with the progress of industrialisation. With the large volumes of the mineral resources and the location of many heavy industries and the development of transport, Bihar is bound

to witness a large mix up in the composition of its urban and industrial population. Looking at the outgoing stream, it is worth noting from the point of view of employment and of relief in the pressure of population on land that the total number of emigrants in 1951 was almost equal to the entire population of the State gainfully occupied in the whole of the non-agricultural sector. Nor is this comparison inappropriate because the number of dependent women and children in the total of the emigrants population is very limited and it consists almost entirely of the economically active population. Moreover, the Committee has reasons to believe that the Census returns rather under-state the volume of the emigrant population. This is because it is believed that by March, almost all the emigrants to Assam and a very large number of other seasonal emigrants had already come back to their homes owing to the early start of the monsoon in the North-East, so that these figures give the number only of those who constituted the hard core of this category of the people who stay away for a longer period than a season. An effort should be made to calculate the total volume of the seasonal emigrants too.

- 6.3. The directions of the emigration.—As to the directions of the emigration, most of the people go to West Bengal, Assam and Uttar Pradesh. In the days before the separation of Burma, quite a large number of people from Bihar were regular temporary emigrants to Burma. The development of roads, railways, etc. in Assam were mainly due to the emigrant labour from Bihar while this State also contributes appreciably to the labour force in the tea gardens. These emigrants also perform much of the hard work in the rural areas and in the factories in West Bengal. It would not be inappropriate to say that if the emigration of labour from Bihar under contracts confined to seasonal labour could be organised, the difficulties reclamation and of large \mathbf{scale} constructional work in Andaman Islands could be easily overcome. It may also be stated that the industrialisation of the western area of West Bengal is benefiting not only Bengal but also provides appreciable employment to manual workers from Bihar. The Bihar emigrants, however, take time to get accustomed to new regions for employment and the opening up of new spheres of work outside Bengal, Assam and Uttar Pradesh is not reported to be attracting labour from Bihar. It is also gathered that the special concession in third class railway fare to emigrants to Assam by way of a special coolie class railway ticket, which was available about three decades ago, is no longer available. It may be desirable in the interest of employment of manual workers from this State to consider the possibility of concessions in railway fare for seasonal emigrants. The Railways themselves ought to consider such a proposal favourably since the outgoing and incoming seasonal emigrant traffic forms a valuable proportion of the total passenger traffic of the North-Eastern, North-East Frontier and Eastern Railways.
 - 7. Unemployment Refer for the Landless.
- 7.1. Provision of land for the landless as a method of unemployment relief.—Land is the main instrument of production and employment. It is another question that a purely agricultural economy is not desirable, but it is clear that if we could have more of land, there would be no problem of unemployment. It is also known that unemployment and under-employment afflict the landless families in the agricultural sector to a greater extent than it does the owner cultivators. So, one method of dealing with the problem of unemployment would be to provide land for the landless. The following are the possible sources from which land may become available for the relief of agrarian unemployment:—
 - (i) Land available by means of ceiling legislation on land holding.
 - (ii) Reservation of State owned zirat land for settlement with the landless.
 - (iii) Reclamation of waste land in the plateau regions and in the riverine areas and by draining of chaurs.

- 7.2. The ceiling legislation and its limited possibilities for unemployment relief.—We are not concerned here with the general me its and demerits of the ceiling legislation but only with the extent to which it is likely to place some land at the disposal of the State for unemployment relief. The Committee is very diffident about the total quantity of land which may become available for rural rehabilitation. The State itself owns large areas of waste land in the plateau region, but further acquisition by ceiling legislation may not bring much land suitable for cultivation. There are various estimates of the size of holdings and an estimate of the large holdings has still got to be made. Even if the Revenue Department were to prepare any estimate now, it may not be possible to know the extent to which nominal holdings would be split up among the smaller units of the joint family and leave any surplus. Moreover, where large holdings are in consolidated blocks, whether owned by agriculturists or firms, the fear of disorganising the managerial unit of the land cultivated on scientific lines will have to be considered. It would also be desirable to let some large farms continue as models for demonstrating advances in agriculture. A sample survey of the holdings over ten years ago showed that the percentage of families owning holdings of 15 acres and above ranged from 8.24 per cent in the Rauchi district to 2.56 per cent in Saran and 1.84 per cent in Hazaribagh. We do not know much about the number of holdings over 30 acres, over 100 acres and over 300 acres. The broad conclusion is that no appreciable relief can be expected from the ceiling legislation.
- 7.3. Reservation of the State zirat land for the landless.—It has already been the practice, under orders of the Government, for over two decades to give preference to Har jans in the settlement of Khas Mahal lands. Now that the Government have come to own the zirat lands of the previous zamindars as well, it is recommended that the preference of the landless families for the settlement is to be continued. We, however, see no justification for dividing the landless into further sub-classes of Harijans, Backwards and others. For the purpose of economic rehabilitation, all landless applicants with no other source of employment, are to be treated on the same footing. At the same time we also recommend that the small handicraftsmen should not be debarred from being considered as landless because small holding would enable them to fill in their time-table of work and induce them to stay in the rural area. Everything being equal, preference should be given to local people capable of keeping up and intensifying production.
- 7.4 Reclamation of waste land: Limited available area.—We have already seen that the percentage of the total geographical area under plough in India is the highest in the World, even far higher than in China. The figure for alluvial regions is still higher. Even according to our rough statistics collected without any careful appraisal of cultivability, there are barely 3 million acres of what has been classed formally as culturable waste. These, too, are mostly in the plateau regions, in the hilly areas of Champaran and in the Kosi belt. These locations, as indicated by the districtwise figures, themselves show that unless further details are available, it would be difficult to rate the figure of cultivable waste land at an appreciable level within the three million acres.
- 7.5. Unsuitability for cultivation of the total area officially classed as culturable waste: the margin of reclamable hilly regions by terracing.—Another reason for not being highly optimistic is that, by a process of natural selective method in an old settled country, all the good cultivable lands have already been taken up unless they are very inaccessible. Hence most of the waste lands are marginal lands. Indeed it is the opinion of some forestry experts that the pressure of population has forced much inferior and unsuitable laud under the plough which could more fruitfully be put under trees, shrubs and grasses. The view has also been expressed that there is already a considerable area of land in the belts of the foot-hills which should rather be covered up under vegetation by afforestation in place of being subjected to the erosive action of wind and rain due to cultivation.

Mention, however, may be made to the scope for the terracing of the milder slopes of hills where the soil is suitable for cultivation or even for purposes of more effective soil conservation operations. Careful and properly planned terracing providing stretches of land under permanent coverage alternating with cultivated belts may be considered both as a method of land reclamation and for providing employment in controlling geography by means of mass employment and relief employment.

- 7.6. Scope for reclamation in the plains.—There is some scope for the reclamation of weed infested lands in the Kosi belt and in certain other areas in Champaran. Their reclamation would be helpful because they lie within or near the densely populated areas of the State. The draining of chaurs, however, has got to be taken up with some caution and a consideration of the effects on the moisture in the soil and the water level of the surrounding areas. In any case, the area available would be extremely limited.
- 7.7. Other methods of finding land for the landless: Supply of cultivated land released by absentee land owners.—We have seen in another chapter how there has been a growing tendency towards the migration of people from the rural to the urban areas. This process has been stronger in the other states than in Bihar. It is likely to have increased since the last census, and may continue to increase in future. The lower middle class families have been migrating to the towns in appreciable numbers even though they own family holdings in the villages. We have observed that the first generation of such families may continue to maintain an interest in the cultivation of their lands, though it is not at all a very active interest even in the managerial work. However, the first generation at least seeks to eling to the aneestral holding. But this interest tends to become weak because the profit from the land tends to fall as a result of absentee management. Secondly, the application of the Minimum Wages Act in agriculture, the growing assertiveness of the labourers as well as seasonal scarcity of workers sometimes have been inducing even the first generation to sell the land in the villages and invest the proceeds in house property in towns or in business. The succeeding generation becomes more willing to part with the property in which no such personal interest and attachment has been fostered as it grows when children have been brought up on the land. It is only in the ease of families whose male members go out alone for work or service that the link with the village and the land is maintained. The result of all this trend of urbanisation is that there is a regular offer or atleast a willingness on the part of a number of people to sell their lands in the villages. We draw the attention of the Government to this new agrarian feature and to the faet that more land is likely to become available for the rehabilitation of the landless by a suitable policy for utilising this trend than by means of the ceiling legislation or land reelamation.
- 7.8. The Small Holdings Acts of the Western European democracy may not be suitable for Bihar as a model.—In all the democratic countries of Europe and in the U.K., there are Small Holdings Acts which empower the Government to acquire land, in whatever quantities they consider necessary, out of the large and even medium holdings for creating small holding; for the landless. The details about the payment of the price and its recovery from the peasants taking over the small holdings created out of the land so acquired varies. But in every ease the recovery is spread over a number of decades which means that the instalments are like those under the hire purchase system but even more liberal. It is remarkable that one of the objectives of creating small holdings is to prevent a growing depopulation of the countryside. This may not be desirable in our own State in view of the fragmentation of the holdings which already exists and the heavy pressure on land in this State.
- 7.9. Co-operative farming.—We are not at all on very firm ground when eonsidering the employment potentials of co-operative farming. In the elassical co-operative

movement there was farmers' co-operation but no co-operative farming. Co-operative farming after the Revolution in Russia has been adopted from motives quite distinct. In the Soviet Union it was adopted with a view to curb the individualism of the peasant and for regimenting them both for large scale mechanised farming as well as for controlling the agricultural economy for the purpose of feeding the urban population. In China, it has been adopted as adevice for the painless elimination of the land-owners and ultimately establishing the principle of the ownership of all land by the State through the communes. Our own objectives with regard to co-operation in agriculture are not so radical and our main objective is to reduce the disadvantages of small and fragmented holdings as well as to impart a progressive outlook to agriculture and to provide a new pattern of land-management and land-utilisation. We are, however, diffident about the extent of the sense of joint responsibility so far attained by the highly individualist cultivators and even by the landless labourers. The latter would certainly prefer an outright ownership of even a small holding to a partnership in a large farm. It is possible to organise co-operative farming in Bihar with the clear objectives of (i) eliminating the wasteful features of the small and fragemented holdings, (ii) imparting a progressiveness to agriculture, (iii) providing local leadership, (iv) securing the advantages of large-scale purchase and sale, and (v) owning jointly such mechanical appliances as are beyond the reach of the individual farmers. We, however, believe that the tendency of co-operative farming is to bring to surface the extent of unemployment and under-employment. It may also result in economy of man-power requirement of the farm. But such a tendency may be kept in check by extending the field of co-operation in relation to horticulture, animal husbandry and other activities of a balanced farm, and intensification of farming in general.

- 7.10. The Batai system may be organised as a valuable type of lease-hold.—On account of a number of causes the Btai system has been condemned outright. In certain districts, like Purnea, it has been used as a method of exploitation of the tillers. But it deserves an objective examination from various points of view. We have received complaints of large scale displacement of Bata dars from the other districts where it provided a more stable source of employment to the landless than mere casual wage work. The Batai lease-holder enjoys a higher social status than the mere landless labourer and he is really the pick of the class. It introduces a selective and flexible principle in the agrarian system by which the landless families with a higher sense of responsibility and willingness for hard work may improve their ecnomic and social status. It may be used for supplementing the other methods for rehabilitating the landless. It may provide a smooth means for the ultimate elimination of the absentee proprietors whose number is increasing as a result of urbanisation. It may be used for preventing the temporary disuse of small holdings owing to the seasonal or short-term migration of the small owners from rural areas. For all these reasons, we recommend an objective examination of the extent of absentee land-ownership of small holders also by means of a sample survey, an investigation for such means as may be adopted to prevent the disuse of land by short-term absence of small owners as urban workers, and an enquiry as to the form in which the Batai system or any other leasehold method may be used for preventing any temporary disuse of cultivated land and increasing unemployment.
- 8. Mass employment and relief employment in permanent improvement and transformation of the geography of the State: Meaning, significance and scope.—Many underdeveloped countries have sought to transform the geography of the country by large-scale works. Their plan and programme have included such huge works as river taming of various kinds, reclamation of marshes, winning of land from shallow scas, checking the encroachment of desert by the provision of shelter belts of trees, desert reclamation by diverting rivers to them, construction of multi-purpose river valley works,

other works for the conservation of rain water, building of embankments for river taming, extensive measures of gully-plugging, reclamation of inundated regions, large schemes for controlling the regions of head-waters of rivers by means of afforestation and coverage of hill slopes and foot-hills with vegetation, terracing Such works were not unknown to primitive civilisations hill slopes, etc. when all the work had to be done by man without the aid of mechanical appliances. In our own time, Fascist Italy was able to convert the sand dunes and bare hills on the sea coasts of Cyrenaica into smiling vineyards by first covering them under wattle. Systematic large-scale afforestation of hill slopes by carrying earth to pockets dug and blasted in bare rocks in the Central European countries is a remarkable example of man's success in taming nature. Russia's massive achievements with mechanical aids as well as without them in transforming geography are well known. We can draw not only lessons but also inspiration to a greater extent from these experiences of other countries, because one of our objectives is to devise methods for the employment of the mass of our redundant population while economising eapital.

In view of the fact that even all the developmental measures so far taken, may not entirely take the load of the surplus population off the land, large-scale measures for taming nature and transforming the geography of the State by means of measures like large-scale works for soil conservation, afforestation, river taming, earthworks and such other operations have to be undertaken as soon as possible. Such measures have great potentiality in our State and would yield good direct and indirect results.

9. Standing offers of mass and relief employment.—In view of the mounting volume of unemployment of all eategories, and specially of rural unemployment, the Committee recommends that schemes of standing offers of mass employment and relief employment on such works as would be of durable value to the community should be put on a permanent footing. The Bihar Famine and Flood Relief Code lays down systematic instructions for the regular collection of crop and weather forceasts, price reports and various emergency indicators of impending scarcity and famine conditions. It is recommended that on the basis of these data, permanent schemes of large-scale employment for what may be called geographical transformation through soil conscrvation, afforestation and other measures with standing offers of work on a subsistence wage for patriotic productive work should be widely published and their patriotic nature should be emphasised. They may really appear as appeals for patriotic 'Shramdan' to the people. The measure would also show that the State has undertaken the discharge of its constitutional responsibility of providing work for those who want it.

10. TRANSFORMATION OF THE GEOGRAPHY OF THE STATE.

- 10.1. Basic data required.—For the transformation of the geography of a region, basic data required are—
 - (a) Maps of existing land use as distinguished from mere figures which indicate targets but are unhelpful in locating proposed land use.
 - (b) Soil survey and soil eapability maps.
 - (c) An analysis of the demands for different land uses, namely of food and other crops, fuel, timber, pasture and fodder, the protection of soil from further deterioration and the positive built up of fertility.
 - (d) Planning of urban areas and industrial estates.
 - (e) Survey, planning and development of small-scale and villago industries based on raw materials available and on local traditions of skill and marketing.

- (f) Land reforms.
- (g) The dovetailing of schemes of afforestation, pasture, agriculture and animal husbandry, soil conservation measures and irrigation with each other and with land reforms and industrial policy.

These activities can only be conducted rationally under the guidance of a properly constituted Land Use Board. In achieving this transformation, reliance should be placed on manual labour to the maximum extent possible. There are, however, certain types of work such as high dams and heavy reclamation for which mechanical power is indispensable and will be justified. The Land Use Board must ensure that mechanisation is kept at the minimum level.

- 10.2. Employment in soil conservation operations, forestry and arboriculture.—It is possible to adopt methods of mass employment and relief employment for schemes of soil conservation, some of the operations of afforestation and for road and canal side arboriculture. These types of work do not necessitate the use of costly capital appliances and can be managed with limited technical guidance. It is possible to organise such mass and relief employment measures in addition to the more skilled kinds of work which give regular and continuous employment. The Conservator of Forests of Bihar, however, has pointed out that those forestry operations which are suitable for mass and relief employment are taken up during the rains when the agricultural operations are in full swing and there is rather a scarcity of labour. He also points out the difficulty that, whereas mass and relief employment measures are really needed in the densely populated regions of the Ganga Valley, scope for soil conservation schemes and afforestation exists in the plateau regions.
- 10.3. The favourable factors for soil conservation, afforestation and arboriculture in Bihar.—Except for the spell of the dry summer months in some parts of the State, other conditions for successful large-scale operations to transform our geography are favourable. The hills in Bihar are neither too high nor snow-covered nor inaccessible. In most of the regions with waste lands, the moisture and rainfall conditions are far more favourable than in many other regions of northern India. Nor are they far removed from the densely populated regions, as in Assam or in the Himalayan regions. Hence, we consider the measures proposed to be eminently suitable for mass employment and relief employment. We also feel that much of the fallow area in the plateau region is marginal and sub-marginal and is more suitable for forestry, horticulture and pasture than for farming.
- 10.4. The area available.—We shall calculate the road-side spaces for arboriculture separately. Regarding the calculation of the area available for afforestation requiring coverage of vegetation for soil conservation, we face considerable difficulties in arriving even at an approximate estimate. First of all, we have not been able to get figures in detail of the areas in different categories after the transfer of 3,166 square miles of land from Purnea and Manbhum to the State of West Bengal. however, is not a serious difficulty because the area returned as forest in the whole of Purnea and Manbhum is quite small. Taking the area of the State after the transfer of the territories to West Bengal, we find that out of the total remaining area of 67,164 square miles or 42.9 million acres, about 13.8 thousand square miles are officially under the management of the Government as forests. But afforestation consists of definite productive operations like agriculture, though less costly, and it does not mean that the whole of this area is being managed actively. Moreover, there is another 3 million acres classed as culturable waste, 3 million acres of current fallow. Finally, there are over 5 million acres returned as not available for cultivation but we do not know what part of it is under water, used as roads, under habitations and whether the hills and slopes have been included in this category or in the cate-

gory of unculturable waste. Now, with regard to the category of culturable waste land, there is a considerable body of authoritative opinion that much of it, and even quite a good fraction of the 24 million acres of cultivated marginal land, are more suitable for afforestation than for arable farming and that their cultivation amounts to an outrage on geography. It has, therefore, got to be ascertained what part of the total area of land classed officially as culturable waste should really be so considered and what should be put under afforestation. The figure of 3 million acres of current fallow also needs further examination. It is an omnibus term and current fallow in the plains differs from what it is in the plateau. In the former, the fallow is subjected to continuous ploughing and manuring during a season which is just a part of the year when the land is being actively renovated. But in the plateau it may rest for even three years after one crop has been taken and the land is really marginal in quality. The broad conclusion is that a much larger area than the official 13.8 thousand square miles of forests under the Forest Department is really suitable either for commercially profitable afforestation directly or for the indirect benefits by providing a coverage of vegetation for soil conservation.

10.5. The necessity of a Land Use Survey.—Every country, and even the World as a whole, has reached a stage in which the resources given by nature including land have got to be distributed among their different uses according to the calculations of man's needs and the suitability of a resource in question. Land itself is a composite resource of different kinds, each kind best suited for some specific use or for a given set of uses in which the alternative has got to be scleeted according to the needs of man. Thus a comparative, and not merely a relative, valuation of the specific use of land has got to be made from the national point of view just as a farmer does in putting his own total area into different uses for securing the optimum results. Looking at the problem from just one point of view, we find that experts have calculated according to the conditions of climate on one hand and the structure of the demand of the community on the other, that a given percentage of land should be under forests. It is necessary, however, to survey the entire geographical surface with a view to determine the specific characteristics of different kinds of land for judging the best use to which each kind of land can be put. We have referred to the caution required in draining chaurs, jheels and depressions for fear of affecting the water level and the moisture in the air. We have also made reference about the harm arising from erosion by exposure to the action of wind and rain if land in excess of a certain gradient and of certain physical and chemical features are put under plough. We know that up to a certain extent the physical and chemical features of land may be modified by man. But beyond a certain limit, this would not be an economic proposition, and beyond another limit it may not be possible at all. For reasons we recommend a Land Use Survey of the entire geographical area of the State. Every advanced country, and even many under-developed ones have found such a survey necessary, and have already accomplished it and have framed their land utilisation policy on the basis of the data emerging from such a survey.

11. Employment potentials of land reclamation by manual labour.—The subject of land reclamation has also been dealt with in the section on intensive farming and emphasis has been laid on the work by means of manual labour. It has also een observed that the selection of land for arable reclamation has got to be made very carefully and cautiously after taking into consideration the gradient, physical properties, nature of the sub-soil, volume of flow of rain water on the lands, facilities for irrigation, the risks of erosion by water and wind in subjecting the land to the plough, etc. Reclamation by manual labour is likely to make the work more selective and to minimise the chances of mistakes by ignoring the conditions noted above. Even if reclamation in large blocks has been decided upon after a careful consideration of all the conditioning factors noted above, we recommend that the work be done through manual labour in order to foster large-scale employment. The official

charge of reclamation estimated the area estimate of the authorities in of the reclamable waste be 1.8 million in 1956 out land toacres in the culturable waste land. 3 million acres classed statistics as An acre of waste land in the plateau region has been estimated to require from 200 to 400 mandays, according to the nature of the soil, to convert laterite soil within reclamable margin into paddy fields by levelling and terracing. These data give us an idea of the extent to which soil reclamation by manual labour may be utilised for providing mass employment. If the lands are selected judiciously, most of the cost of reclamation can be recovered from those with whom the lands may be settled by an instalment system. Mcreover, it is our opinion that no further mechanical appliances for soil reclamation need be purchased except for the purposes of gully-plugging, high dams, heavy reclamation which cannot be done successfully and on a large-scale by manual labour. The proposed Land Use Board must ensure that mechanisation is kept at the minimum level.

We recommend that carefully prepared detailed plans for the reclamation of specific blocks of land, selected after considering all the factors bearing on such selections, be kept ready along with standing offers of employment for the purpose of relieving mass unemployment. The projects of irrigation, soil conservation and afforestation as well as of intensifying agriculture in a river valley should be taken together to ensure co-ordination and secure mutually beneficial interactions of the activities to the maximum extent in the shortest possible time.

12. Employment in soil conservation operations.—The difference of soil conservation operations, which we look upon as a kind of reclamation different from the reclamation for arable husbaudry is that in this case the cost would be in the nature of a social overhead one and not recoverable directly. In detail, the soil conservation measures would consist of earthworks and of silvientural operations including the provision of coverage of the soil by reeds, shrubs and grasses. As to the earthworks, we repeat the recommendations made in the last section about land reclamation that they should be done by human labour. The second category of the work, consisting of measures for providing a coverage of vegetation, is clearly the sphere of manual labour and we recommend that, in view of the large areas of hill slopes, foot-hills, gullies and lands with vulnerable gradients, detailed plans for the works in separate blocks be prepared and utilised for mass employment and relief employment.

B.—ZHPLOYMENT POTENTIALS OF FORESTRY.

- 13. The economic value of afforestation and silviculture.—While we are primarily concerned with the employment value of afforestation, it is necessary to explain that the expenditure can be justified for three other equally strong reasons. Firstly, afforestation as a part of the management of forests is a capital work and the expenditure is in the nature of an investment. Secondly, the development of a number of industries and activities, as we shall see, depend upon the supply of the forest produce as their raw materials. Ever since the conference of the Central Board of Forestry at Ooty in 1955, specific responsibilities for the supply of certain raw materials have been placed on the Forest Department. Thirdly, we have to take into account the indirect value of afforestation as a method of taming nature, preventing floods and soil erosion and improving moisture and elimate. And fourthly, there is the scope for providing mass employment by means of afforestation and other silvicultural operations.
- 14. Silviculture is not mere exploitation but may be fairly labour intensive: Its industrial and commercial value.—Although there are many kinds of produce which can be gathered from forests by merely exploiting the natural resources, forestry as a socially

useful enterprise requires considerable investment, mainly of labour, to reap the maximum of the benefits. The expansion of human habitation and the inroads of cattle both take place at the expense of the natural growth in the forests. Forests provide a rich harvest of valuable products and a good return on investments. We have seen how in the scheme of land utilisation there are certain types of land which can be put to comparatively the most profitable use only by silviculture. In many parts of India even private persons put land under quick growing fuel trees like casuarina on an eight-year rotation and derive an income by the sale of fuel wood. Just as there are different levels of farming intensity in agriculture so also in silviculture, different branches of plantation in forestry require different degrees of intensiveness in the employment of labour and capital. For example, the culture of timber and fuel trees is not very labour intensive beyond certain initial investment and operations, but the cultivation of sabai or lemongrass involves as high an intensity of labour as in some lines of agricultural production. In order to emphasise the value of silviculture in order to foster a favourable mental attitude for the investment of labour in afforestation, which we are proposing, the major forest produce may be named here. These are timber, firewood, match-wood, soft-wood for other purposes, bamboo, and sabai for pulp and paper industry, other reeds and grasses suitable for the manufacture of pulp, other fibres and creepers, bidi-leaves, tanning barks and fruits, lac hosts, tassar hosts, herbs, certain oil-bearing seeds of trees, trees yielding gum, various grasses as well as shrubs and trees yielding fodder, etc. The actual and the potential areas under forests thus constitute a most valuable source of industrial raw materials and a means for providing employment for their regeneration, up-keeps and exploitation.

15. EMPLOYMENT VALUE OF SILVICULTURE.

15.1. The actual and potential area under forests.—We have already indicated the vast scope for afforestation in Bihar and shown how a more accurate appraisal of the total area of land of silvicultural value is necessary. This work has got to be done in the context of the principle of mass employment already formulated as well as for expanding the scope for regular employment. It was estimated at the beginning of our Second Plan period that out of 13.8 thousand square miles of forests under Government control, about 2.6 thousand square miles have to be released due to having been wrongly entered as forest by the Survey and Settlement Operations. Even this total of 13.8 thousand square miles is far short of the norm of the land surface to be under permanent coverage as estimated by land utilisation experts. We further recommend that, as far as possible, private persons may also be persuaded and encouraged to undertake silviculture as an occupation like agriculture and fishculture. It is not at all necessary that all the area of the forests aimed at must be under the ownership and management of the State alone.

15.2 Only a fraction of the productive and employment potentiality is being utilised as yet.—Of about 13.8 thousand square miles of Government forests, only about 1.4 thousand square miles are classed as reserved and subject to greater or less silvicultural management. The Second Five-Year Plan aimed at the afforestation of a paltry 175 square miles, and even this is not being achieved. The estimated cost of afforestation per acre is Rs. 180 and this gives us a rough idea of the employment potentials of the operations even without the ultimate employment in the harvesting of the diverse kinds of produce. The employement potentials of a vigorous forest policy are brought out by the fact that even the management of the meagre area of about 14 hundred square miles requires every year 15 lakh mandays in seasonal work, besides employing 2,600 persons permanently as gnards and 500 persons in the administrative work.

16. Varying intensiveness of labour in different lines of silviculture.—Systematic silviculture creates many kinds of employment in different activities which requires further investigation. They are indicated here broadly. The operations involve both preparatory as well as continuous and recurring work. Different lines of silviculture involves different degrees of work. When an area is to be selected for afforestation, it requires careful survey and investigations for determining the appropriateness of the soil and other conditions for the particular type of vegetation. If the block is large, it has got to be demarcated into felling and annual coupes for felling purposes. Of course, in case of bamboo, the arrangement would be different while grasses like sabai require annual harvesting all over the block. It has been gathered that wire fencing has been costing so much that it causes a serious drain of the funds which would otherwise have been used on more employment for plantation. Often the land requires embankments and bunds. Next, the maintenance of nurseries require skilled malis. The actual work of planting calls for the preparation of the pits. The planting operations have got to be done with great care and during the rains. Even then, in certain cases, watering during the first one or two years may be necessary. Then protection from stray cattle has got to be provided for. Finally, when the trees are ready for felling, it requires skilled workers. Logging is a business which is conducted on very scientific lines elsewhere. In 1958, the Report of a team of Food and Agriculture Organisation experts on the subject pointed out that the Indian methods were so backward that in the making of wooden sleepers, as much as 70 to 80 per cent of the tree volume was wasted. Another line of activity creating employment is the building and maintenance of tracks and roads for wheeled traffic. The transportation of different forest produce, most of them bulky in nature, provides an appreciable volume of employment both within the forest areas and outside. Next, even where no active management and plantation is involved, the harvesting of many forest produce like honey, seeds, lac, tassar, cocoons, gum, grasses, bidi-leaves, etc., provide a large volume of employment.

17. DETAILS OF EMPLOYMENT POTENTIALS OF SOME IMPORTANT BRANCHES OF SILVICULTURE.

- 17.1 The demand for raw materials for paper and other cellulose industries.—The increase in the demand for the different products of the paper industry including newsprint, craft, writing and wrapping paper and paper board has been so great that even the phenomenal expansion of the industry during the last five years has failed to meet the entire demand. In 1956, there was an import of 20 thousand tons of even old newspapers for wrapping. Production has increased from 93 thousand tous in 1947 to 210 thousand tons in 1957. We can imagine what would be the trend of further increase of the products of the paper industry as compulsory education comes in, higher education grows and the growth of industries and retailing of consumer goods create further demand for all the different products of the paper industry. Moreover, the Indian artificial silk rayon industries have also been growing and seeking to substitute Indian raw materials for the imported ones. The combined effect is to create an expanding demand for raw materials for mechanical and chemical pulp. The fear of a shortage of raw materials was felt timely, and in 1955, the Central Board of Forestry, which net at Ooty, recommended special attention to be given to specific areas being devoted for growing raw materials for paper, plywood and match industries. This recommendation was duly considered by the Planning Commission and another specific objective of forestry was formulated. Thus another direct responsibility, not visualised so far, was placed on the forest administrations of the States.
- 17.2. Raw materials for the paper industry.—The standard raw material for newsprint is the coniferous wood of the temperate zone. But our own supply of this wood is limited and confined to the difficult slopes of the Himalayas. However, as a result

of the prolonged researches in the Indian raw materials, the Forest Research Institute at Dehra Dun was able to devise formula and methods for pulping bamboo and sabai grass which are now the mainstay of our paper industry. It is this successful use of bamboo which has led to the steady growth of the industry during the last 20 years. It has been estimated that the demand for bamboo amounts to 3 lakh tons annually. Bamboo has a vital role because even when other materials like sabai grass or other broad-leaf wood is being used, bamboo pulp is necessary for imparting long fibres to the paper in the process of manufacture. Meanwhile the fear of, and even the actual experience of the scarcity of raw materials like bamboo and sahai grass has led to sustained researches being carried on for the utilisation of other cellulose materials and forest produce. They covered many broad leaved hard and soft wood of various kinds of which salai wood is already the mainstay of the Nepa Paper Mills. Bagasse is also being used now after separating the soft pith. But experiments are reported to have succeeded for using the whole bagasse with the pith. Other trees and grasses being experimented upon are wattle wood, blue gum, chir, castor and linseed stalk, various reeds and grasses like ulla, paper mulberry, elephant grass, etc. The threat of a paper famine is so world wide that other countries, too, have been experimenting for widening the field for utilising various reeds, grasses and shrubs. The Chinese appear to have achieved a remarkable success in manufacturing high grade rayon quality pulp from various reeds. In France, a pilot plant has been set up for pulping hemp which grows profusely there. We have given these details here to show the wide scope for the choice of such plants as may be grown on a large scale in the forests, waste lands and fallows of the marginal type in Bihar.

17.3. Suitability of Bihar for growing raw materials for paper and ra on grade pulp.—The Bihar forests, waste lands, hills and slopes can grow all the raw materials required for these cellulose industries. One great advantage is that the Bihar forests are geographically situated at a place in India from which these raw materials can be supplied to all the other States also. Secondly, the moderate altitude of the hills, and the favourable climatic and rainfall conditions favour the growth of almost all the trees and grasses required except the coniferous trees.

Government, through Forest Department, are already taking steps to discharge the responsibility of providing regular supply of raw materials for paper and match industries, but the measures so far taken are inadequate and need to be greatly intensified. With regard to other forest products, the National Forest Policy should be implemented with greater speed.

17.4. The value of independent pulping units.—The integrated paper mills first manufacturing their own pulp and then the paper from it have got to transport bulky raw materials in natural condition to the mills. This involves great difficulties and heavy cost of transport. Recently, steps have been taken for siting independent pulping mills near the sources of raw materials and a unit is being set up in Assam. This development would be of immense benefit to Bihar in view of the large scale scheme of afforestation for mass employment which we are advocating. We, therefore, recommend to the Government to prepare beforehand schemes for setting up pulping plants of economic sizes as schemes for large scale expansion of silviculture for raw materials for the paper industry are taken up. It is gathered that pulping can be done on a comparatively small scale which is common in Japan. This auxiliary measure would enable the production of raw materials like bamboo, sabai, etc., on a much larger scale and even in the less accessible hilly areas of the State like parts of Palamau, Ranchi and other districts.

We, therefore, recommend that the Forest Department and the Department of Industries should jointly prepare a co-ordinated scheme of location of pulping units

along with extensive cultivation of bamboo, sabai and other pulpable wood and grasses so that the heavy cost of transportation of raw materials may be avoided with a view to give a fillip to the expansion of silviculture.

- different point of view from that in the sections on Intensive Farming. Here we emphasise the possibility of bamboo growing on a large-scale in the forests of the plateau region. The Second Five-Year Plan of Bhar provides for the afforestation of 35 square miles of the forests every year, but hardly half of this target is being achieved. The plan further provides 10 per cent of this area, or 3.5 square miles to be put under bamboo. Considering the economic and employment value of bamboo plantation and snitability of the hilly areas of the plateau for the purpose, we strongly recommend a more extensive scale of bamboo plantation with all the necessary precautions of separated blocking to prevent or reduce the risks of forest fires. We have not been able to collect detailed data on the employment potentials, but we consider them to be quite high in the aggregate even directly in the work of laying out the plantations. Moreover, after the plantation have come up, there would be regular annual employment in cutting, removing and transporting bamboo even when the scheme of decentralised pulping is adopted.
- 19. Employment potentials of sabai growing.—As a result of information received about the decay of sabai cultivation in the Sahibganj area and the resultant unemployment among the Paharias and the Santhals of the locality, the Committee resolved to enquire into the subject. This investigation was earried out and a mass of valuable data was collected which was sent to Government together with appropriate recommendations. It is not possible to incorporate all the details in this chapter and only the salient features may be brought out here. It was discovered with some surprise that sabai is not just a wild growth to be harvested onee a year. growing of sabai requires much labour in weeding, eleaning and looking after plantations, and for guarding them against eattle. Thus, even apart from the employment provided in harvesting, bundling and transportation, it requires more mandays per acre than perhaps any other silvicultural line except, perhaps, lemon-grass. Apart from this employment value, it has got another great value in that it is a grass which can be grown all over this State although the yield is heavy if the soil is good. However, even the limited growth on the poorer soil has got another very desirable quality of binding, conserving and improving the texture of a coarse soil through its soft and generous root system. We, therefore, recommend measures for increasing the acreage of sabai both under the Forest Department as well as by private land owners. Sabai is one of the crops required by the Planning Commission for special patronage by the State. In Bihar 5 per cent of the annual afforestation is thus to be put under sabai. But this hardly comes to even 2 square miles a year. It may be noted that apart from the amount of labour required for weeding and other measures on old plantations, the laying out of new sabai plantations is quite a labour intensive operation. It requires a careful and painstaking ploughing, harrowing and weeding of the land. And if the land has a gradient, further measures to prevent soil erosion, until the plantation itself has provided a coverage, is necessary. Perhaps it is for this reason that small growers in some areas lay under sabai only lengthwise strips of land sandwiched between cultivated strips in the hilly areas. We consider sabai to be a very good coverage for ploughed gullies.
- 20. Forest products for the plywood industry.—The information collected by the Committee on this subject is limited and it is recommended that Government may be requested to examine the full possibilities of growing various kinds of softwood besides simul which has got to meet the more pressing demand of the match industry. Our industrial expansion would be increasing very rapidly hence the demand for packing wood is bound to increase rapidly.

- 21. Match wood.—The suitability of Bihar for growing simul and other soft wood for the match industry needs no demonstration. The present plan provides for an annual plantation of 400 acres of simul. We consider that this line can be taken up by private persons as well owning marginal quality land. The Forest Department, too, can increase the acreage, since after perhaps two years the tree shoots ap beyond the reach of cattle and also grows the protective thorns. It is considered to be a hardy plant.
- 22. Timber.—The Plan requires the Forest Department of Bihar to put 400 acres annually under teak. This systematic planting of teak is in addition to the well discharged old job of the Forest Department in sal planting. Timber growing is a long range measure and we have nothing to add to what is being done.
- 23. Fire-wood.—Perhaps the existence of widespread coal mines in the Plateau does not create any urgency of systematic cultivation of fire-wood. But fire-wood is used in large quantities in the villages. From the employment point of view we would recommend that the growing of fire-wood on an extensive scale should be taken up both by the Forest Department and by private persons. We feel that a generous supply of fire-wood to the other parts of the State and to Bengal may become an economic proposition if the means of transport become cheaper and easier. We also think that quick growing trees suitable for being converted into charcoal may also be considered. It has already been mentioned that the growing of casuarina in an eight year cycle is a profitable business for owners of marginal lands in some parts of South India. The system of forest farms by farmers in the villages is being vigorously pushed on in certain states under the guidance of their Forest Departments.
- 24. Lac.—The host trees of lac grow wild, but since they are found scattered in the forests, systematic lac growing is not possible there. The collection of the raw stuff is done carefully by skilled workers. Systematic cultivation of the host trees by small farmers as a subsidiary activity, or on a large scale, can be taken up in the inhabited regions. The Forest Department has been giving encouragement to this occupation by raising and distributing broad lac among the growers.
- 25. Bidi-leaf tree.—Kendu grows without much care as a wild growth on rather inhospitable lands in the foot-hills. The collection of bidi-leaves takes place in April and May which is a slack agricultural season in the hilly and foot-hills regions of Bihar. A systematisation of the work of collecting Kendu leaves would increase its employment value.
- 26. Toddy palm and date palm.—Perhaps the Forest Department does not consider palm growing as one of its appropriate jobs. But the Committee is recommending it in view of a number of favourable factors and because they do not figure in the orthodox programme either of the Forest Department or in that of the authorities in charge of soil conservation. Firstly, these palms can grow among crags, in the crevices of rocks, on the hill slopes and everywhere where nothing else can grow. Secondly, their root system disintegrates rocks and helps the formation of soil. Thirdly, they help to provide coverage against erosion by wind and rain if put in dense plantation. Fourthly, they do not require irrigation of the tender plants. Fifthly, they are goat and cattle proof and do not require any guarding. For the last two reasons, the planting operations are cheaper than that of any other vegetation. Finally if large scale plantations are laid out, they would give rise to further employment in (i) palm gur making and in (ii) setting up bec-hives for honey. We recommend that both the soil conservation authorities and the Forest Department may consider this proposal scriously.
- 27. Sisal: Its manifold values.—In a recent statement, the rope manufacturing industry voiced its difficulty with regard to the import of raw materials. This was

an unexpected piece of news in view of the general belief about our own abundant supply of fibrous materials growing so profusely in the tropical countries. But it appears that apart from the coir industry of South India, which is concerned with cocoanut coir as its raw material and is well looked after by the Coir Board, there is scope for increasing the supply of the proper type of fibres for the rope industry in the North. Sisal fibre is one of the best materials for this industry. The plant grows luxuriantly both in the plains and in the hard laterite soil of the plateau. Further, it has got high soil conservation properties both on account of its leafy coverage and the binding qualities of the root system. The fact that it has got unsavoury associations in connection with the penal manual work in the Hazaribagh Central Jail, where the leaves had to be beaten by hand for the extraction of the fibre, must not make us ignore the fact that in other countries the work is done by machinery in well-organised factories. We, therefore, recommend that the Forest Department may consider the establishment of sisal plantations on the inhospitable laterite soil of the plateau along with arrangements for mechanical extraction of the fibre on suitable scales. Both the laying out of the plantations and the subsequent harvesting and processing operations have got appreciable employment potentialities. From the point of view of the costs of afforestation itself, it has a great micrit that not only is sisal cattle-proof, but if planted in multiple rows as hedges around the other afforested blocks, it might even save the enormous cost of wire-fencing which is consuming so much of the allotments for afforestation. Thus it may enable these savings to be put to the more productive purpose of laying out more plantations of other forest trees and thereby create additional employment.

28. Reeds, grasses, creepers and other fibrous vegetation.—We have seen how the Forest Research Institute at Dehra Dun has been conducting researches over a long period for utilising many of the obscure reeds and bushes for cellulose industries. We have noted the success of the Chinese chemists in this sphere. In Bihar itself the soil conservation authorities have accumulated a considerable volume of knowledge and experience in the utilisation of various kinds of grasses and other vegetation for their own purposes. It would add considerably to the value of the soil conservation measures if the economic use of such of these vegetations, as might be harvested without defeating the primary purpose of their planting, could be established. Finally, there are many kinds of vegetation occurring as natural growth in the forests whose values are known to the local people only, but deserve to be known officially and more widely with a view to assess if their regular cultivation in the forests would be of economic value.

29. Lemon Grass.

- 29.1. Use and demand.—India is already the largest producer and exporter of lemon grass oil. Lemon grass is grown and distilled in Kerala and Malabar. It has been used in the soap, perfumery and cosmetic industries for a long time. In recent years it has been used in the U.S.A. and Europe for the manufacture of synthetic Vitamin A. Thus a stable demand for the product of this plant already exists.
- 29.2. Suitability of Bihar soil for lemon grass cultivation.—This grass has been discovered to be growing in a wild state in many tropical countries. It thrives in gardens and homestead compounds in the plain as an ornamental bush. In South India it grows in the hard laterite soil. Hence there is no reason why it should not grow in plantations on the laterite soil of the plateau region under conditions even more severe and inhospitable than that required for sabai grass. In fact, the uncared for bushes in gardens in the plains look very much like sabai. The growth is quite quick but is shorter in height than that of sabai. Both the red variety, which yields a superior quality of oil, and the white variety, are found to flourish in Bihar.

- 29.3. Employment potentials.—Very thorough ploughing, harrowing and weeding would be required to be done before the rainy season sets in for preparing the soil for the first plantation. These preparatory operations consisting of three ploughing and other operations would require about 12 plough-days and about 6 additional mandays per acre. Sowing of seeds is done when the rains set in, and this would require 3 plough-days and 3 mandays per acre. The average life of the plantation would be 6 years, but weeding would be necessary every year as in the ease of sabai. Where manuring by spreading ash can be arranged, it would induce a more luxuriant growth of the plants. In the first year, there can be only one harvest. But from the succeeding year, five cuttings between July and December may be possible. It is clear that the reaping, baling and transportation would mean an appreciable additional volume of employment. Apart from this employment of manual workers, the distillation industry would provide employment for skilled workers and small capitalists.
- 29.4. Recommendation and limiting factors.—In view of the facts presented, we recommend that the possibility of growing lemon-grass on a plantation scale by the Forest Department deserves serious consideration. And since distillation on scientific lines is necessary for meeting the quality demands of the international market, it may not be possible to grow it on widely scattered plots, specially because the distillation has got to be done before the harvested plants are dry. However, a note of caution is necessary. Since there is no large internal market, it would be necessary to consult the Government of India before taking up any large schemes of plantation to ascertain the volume of additional supply which can be absorbed by the international market.
- 30. Cashew nut.—Although our requirements for foreign exchange has drawn our attention to the value of the export trade in cashew nut only recently, it was already well developed before the Second World War. In very recent years the Forest Department of Bihar has been trying to grow cashew nut in the plateau regions and 3,000 acres have already been put under cashew by the Forest Department. So far, it was grown as a commercial crop in South India only. Other areas of lesser production were certain districts of Orissa and Midnapur in Bengal. It is quite a hardy tree and a prolonged dry summer improves both the quantity and quality of the fruit. Hence, it is expected to do well in Bihar. In the South, eashew trees are generally grown mixed with other crops, but if any area is put under cashew nut trees alone, one hundred trees to an aere is the general rule. The important point for our consideration is that a considerable quantity of eashew nut is imported from Africa for the production of the kernel for export. Hence, there is no risk of overproduction. Again, the employment potential of the industry is quite high when we add to the labour required for laying out the plantation, the subsequent labour of looking after those plantations, the harvesting work, and finally, the processes of roasting, shelling, peeling and sweating. We recommend it to be grown on a plantation seale by private enterprise as well.
- 31. Canal and roadside arboriculture.—We have not been able to get an up-to-date statistics of the road mileage of the State. But it has been calculated that before the beginning of the Second Plan period, we had about 37 thousand miles of roads made up of about 30 thousand miles under the District Boards (including the Local Board roads) 4,738 miles (in 1955-56) under the Public Works Department and 2,155 miles of urban roads (in 1952-53). The village roads outside the list of the District Boards and classed as Gairmazrua Am land are not included here. Of the urban road mileage, it is estimated that at least 50 per cent are wide enough to permit planting of roadside trees. Thus there were at least 35,000 miles of roads fit for planting trees on both the sides. Moreover, the village roads outside the District Board lists and shown as Gairmazrua Am, are also suitable for arboriculture wherever they are at least 20 feet wide. Quite a lot of these village roads are of this width

although there have been serious encroachments on them in many districts. It is not known how much of all these roads have already got the maximum density of trees on the roadsides. Hence, the employment which may be provided by further arboricultural activities is not assessable accurately. However, it has been ascertained that for the first planting and care, there would be work for two persons per mile, and after two years, for one man per mile. Besides, there would be work for maintaining the required number of nurscries. It would be possible to maintain these nurseries easily if there are Government or District Board resthouses at every 10 miles. With regard to the possibilities of recovering some part of cost of planting and maintenance of the trees, it has been ascertained that on an average an annual earning of Rs. 176 per mile may be expected from fruits. If the trees are timber yielding like shishum, the sale of timber every 20 to 30 years may be expected to fetch at least rupees ten thousand per mile. It is, however, not suggested that roadside arboriculture can be made into a business proposition. Roadside planting has its own merits and has got to be done irrespective of any income they might bring. The allotment for roadside arboriculture in the budgets of the District Boards has been quite small. We recommend that this useful activity of planting roadside trees may be considered in its employment providing aspect as well. The planting of trees on the Gairmazrua Am village roads should be easier if it is made the responsibility of the Panchayats. The conditions for arboriculture on the sides of canals are still more favourable. It is gathered that the proposals made in this paragraph have already been receiving the attention of the Forest Department,

There is considerable scope for trees on waste lands particularly for green manure fodder and shelterbelts. These should be intensified.

C.—THE EMPLOYMENT POTENTIALS OF INTENSIVE FARMING.

- 32. Employment potentials of farming can be expanded.—In view of the general belief that there is no scope for expanding employment in agriculture taken along with the fact of the large redundant population on land, the Committee conducted a number of investigations and studies to assess the extent to which employment and self-employment opportunities may be expanded in agriculture. Agriculture is the major sub-sector in the economy of land utilisation, the others being animal husbandry, fishery and forestry. All of them have been examined from our special point of view. Much of the materials collected so far may not be utilised in this Report and attempt has been made to present them in a summarized form.
- 33. The necessity of a stable agricultural policy.—In recent years, the attitude and policy of the State towards agriculture have ranged from various degrees of alarm to one of complacency. For this reason, it is necessary to bring out the basic importance of agriculture for the entire economy for economic growth and for the effects both on direct and indirect employment in a sound and prosperous agricultural economy.
- 34. Agriculture is the source of both food resources and many of the raw materials.—Land is ultimately the source of all food resources and of many of the raw materials for industries. There are certain industrially advanced countries which are not self-sufficient in food resources and raw materials but they can afford to buy them abroad by exporting their manufactured goods. And even they feel it to be a source of weakness as compared to the economic strength of the countries which are highly developed industrially as well as self-sufficient or surplus in agricultural production. Our policy-framers have got to recognise the fact that even if we can bank upon our ability to export manufactures and minerals, the population of many of the countries from which we drew our food resources, and are doing so still, are faced with the

problem of feeding a rapidly growing population and are seeking to build up their own industrial capacity. The fact that the recent recession in the U.S.A. did not impair consumer demand and there has been an inflationary trend all over the world, should also be remembered. Even the surplus farm produce of the U.S.A. may diminish in the long run.

- 35. Inadequacy of food resources would inhibit the growth of the entire economy.— An adequate supply of food resources is the very foundation of our economy. This basic importance is further magnified in a growing economy. A shortage of the supply of food resources imposes a severe check on the growth of the entire economy. In a growing economy technology imposes a condition of continuous time lag between investment, which increases very much the moncy in circulation, and the ultimate production of consumer goods as a result of roundabout mechanised process of production. The purchasing power released in the process of capital investment in economic growth places large volumes of income in the hands of the working people who had so far been living in a condition of semi-starvation. The effect is to increase the demand for food resources. Unless this demand is satisfied, the entire process of growth is endangered. Even after the economy has become more diversifed and the pattern of consumption has become more varied with the inclusion of a growing variety of goods and services, the basic demand for food remains. From this point of view the only difference of the higher levels of consumption is that in the richer communities there is an increasing consumption of manufactured goods and a greater variety in the food resources consumed which include more of animal products, fruits etc., and more highly processed food materials are substituted for the cereals and roots of the poorer communities. The result is that if production of food resources does not keep pace with the increase in demand as money income increases, it leads to inflation, to a continuous friction between labour and management and to the loss of productive efforts of both the workers and the employers. Even if the pressure of labour leads to continuous rise in the wage rate, it only leads to further inflation. And such inflationary forces do not really help the expansion of even agricultural production just as periods of boom are not very conducive to the growth of the efficiency of industrial organisations because profits are so effortless. It has also been established by observation that rising prices of cereals do not stimulate larger quantities being attracted to the market but lead to a more wasteful consumption by the growers because their own wants can be satisfied by the sale of smaller quantities of their produce when prices are high.
- 36. The inefficiency of our agriculture was a major cause of our exchange difficulties which threatened to wreck the Second Plan.—The failure of our agriculture to feed our population was high lighted by our exchange crises which almost wrecked the Second Five-Year Plan. The almost continuous import of foodgrains during recent years has contributed to the depletion of our sterling balances and a drain on our earnings of the foreign exchanges which might have been better utilised for building up the industrial foundations of our economy by importing machinery and the raw materials for the growing engineering and chemical industries. We know how even the progress of the river valley projects, of the basic steel projects and of the transport system were endangered by the exchange difficulties. Moreover, agriculture can even contribute directly to increasing our foreign exchange earnings by producing more of exportable commodities like oilseeds, jute, etc.
- 37. The direct contribution of intensive farming to employment is in addition to the indirect contribution for fostering employment in the entire economy.—So we conclude that if our agricultural sector discharges its responsibilities for feeding the nation and increasing the production of exportable commodities, it would contribute to the expansion of employment opportunities in the non-agricultural sector as well. Then, when we compare our agricultural outturn per acre unit or per labour unit with

that of the other advanced countries, we find the existence of an appreciable scope for employment in agriculture itself. This would be possible both by reclaiming and bringing under cultivation suitable new land, but even more than this by more intensive farming of the land already under cultivation.

- 38. The scope for and desirability of extensive arable reclamation is limited.—India has got the largest percentage of its total area under cultivation as compared to the other countries of the world. It is already 45 per cent of the entire geographical surface as against 25 per cent of the U.S.S.R., 9 to 11 per cent of China, 25 per cent of Argentina, etc. In the tropical regions with a high degree of evaporation and only seasonal rainfall, and that in heavy torrents, the exposure of the soil to the plough has to be done judiciously and with caution. The top soil is subjected to erosion by wind when the rainfall is very low, and by water when it is high, unless there is an adequate coverage of vegetation. For these reasons, any scheme of land reclamation has got to be highly selective. As we have already seen in previous paragraphs, there is a clearly demarcated area of land with certain physical features of the contour and of the soil, and of the controls of nature regarding rainfall and sunshine which would be more fruitfully utilised by afforestation than by arable farming. When we take into account the fact that of the entire geographical area only a limited part consists of cultivable land and the rest is made up of hills, swamps, water-courses, roads, habitations and other areas, we realise that the scope for reclamation of new land is extremely limited.
- 39. Meaning of intensive farming.—The conclusion of the last paragraph is that the scope for increasing the cultivated area, and employment thereby, is limited. We have, therefore, to depend on the intensification of agriculture for both increased production and employment. Intensive farming means an increasing use of labour and capital up to the point beyond which the returns are not commensurate with the costs. Experience has shown that the application of science and technology to agriculture as well as the increase in the demand price for agricultural produce tend to increase the intensity of farming as an economic proposition. The scope for intensive farming in India is brought out by the comparative figures of the outturn of most of the crops per acre here and elsewhere. The outturn of all the major cereals, oilseeds, sugarcane and fibres per acre is very much lower in India than in the other countries of the world. And their outturn figure of Bihar is much lower than even the low All-India figures by international comparison.
- 40. The concrete features of intensive farming.—The features of intensive farming are not brought out clearly by the mere statement that it means an increasing use of capital and labour per unit area of land. We have indicated one aspect of intensive farming which should result in a larger outturn of any crop per acre. But another aspect may be an increase in the density of the cropping scheme by which the number of crops sown and harvested on a farm is increased. Such an improvement would necessarily mean more labour for the men and the draught animals as well as necessitate a more intensive nutrition of the land itself. It would mean more labour for the conservation and use of water for irrigation, or for suitable drainage. as the case may be. The intensity of farming is also achieved by mixed arableanimal husbandry and it has been the practice in most countries to increase the number of farm animals on the farm to increase self-employment and the income of the farmer. Then, within the general scheme of the management of the farm and of the density of the cropping scheme, it means a greater volume of efforts on each crop separately, as already indicated. Therefore, intensive farming means a larger use of capital and labour and thus it means an intensification of employment.
- 41. Intensive farming does not necessarily mean small farms.—Looking upon the farmer as an enterpriser and ignoring the fact that land itself may be one of the

items in the scheme of the management of the enterprise, we find that all progress in the technology and practice of agriculture has tended to increase the scope for intensive farming or greater use of labour and capital irrespective of the size of the farm. In fact, it is found that in most of the plantation industries, the larger plantations are able to show better results in outturn than the smaller ones because their resources enable them to reach a higher intensity of farming. Hence, the recommendation which we are making does not necessarily mean a preference for the smaller size, though we have got to shape the policy on the data and assumption of the small farm being the dominant type in our country.

- 42. The natural controls and conditions in our country are favourable for intensive farming.—Even though tropical climate is not very favourable for human labour itself, it enables nature to operate more favourably in the growth of vegetable life wherever the conditions of the supply of moisture and the process of evaporation do not nullify it. It is for this reason that given favourable conditions of the contour and the physical conditions of the soil as well as adequate supply of water and moisture, land in the tropical and sub-tropical regions of the earth can be worked continuously throughout the year. In fact, nature is so over-generous in some parts of these regions and works so intensely to promote the growth of vegetation that it may tend to swamp the efforts of man without mechanical aids to reclaim land for cultivation. It is these favourable conditions which ushered in the Neolithic civilizations and also account today for the dense population of many countries in the tropics. One conclusion, then, is that if we can intensify agriculture, the natural conditions would help us in this process as a method for increasing employment or reducing unemployment.
- 43. Advantages of intensive farming.—For all the facts brought out in the preceding sections and for the following reasons, an all-out effort should be made for introducing intensive farming practices:—
 - (a) It would provide more work for the labour force.
 - (b) It will save foreign exchange used for food and make it available for expansion of industries.
 - (c) It fosters employment in the entire economy. The inhibiting effects of shortage of food resources on the incentive of the wage workers in the urban and industrial sectors are removed.
 - (d) It produces farm surpluses which stimulate in demands for new goods and services and thus generate new employment.
 - (e) The alternative of increasing employment by reclaiming new lands has a very limited scope. Intensive farming practices include—
 - (i) regular recurring efforts on individual farms for the improvement and maintenance of the physical features and of the integrity of the soil and by continuous measures of soil nutrition,
 - (ii) increasing the density of cropping,
 - (iii) mixed arable farming and animal husbandry,
 - (iv) increase in the intensity of labour on each crop, and
 - (v) improvement and maintenance of the quality of the soil.
- 44. The gradation of responsibilities for agricultural improvement.—Any intensification of farming has to assume that the different factors controlling agriculture as an

enterprise are properly structured. In the large and integrated economy of today, the individual farming family or the enterpriser would be helpless unless unfavourable natural conditions have been countered on a national or regional scale and the economic overheads of transportation, marketing, credit facilities, etc. exist. On the other hand, all these measures would be futile unless the farmer now plays his part effectively and efficiently. For the purpose of formulating an effective policy, therefore, we have to specify the responsibility of each party in the agricultural economy. These parties broadly are—

- (i) The State;
- (ii) The market consisting of all those whose decisions in a free economy make the economy operate automatically;
- (iii) The associations of individual farmers through which they seek to perform certain functions more efficiently or to counter any unfavourable impact of the market on them. The Co-operative Movement easily comes to our mind here; and
- (iv) The individual farmer as a risk-taking enterpriser, manager and worker or a large farmer as an enterpriser and employer.
 - 45. THE DETAILS OF THE RESPONSIBILITIES OF THE DIFFERENT PARTIES.

It is clear that we cannot think of the farmer of today in terms of the pioneers left to their own resources. If the farmers have responsibilities for feeding the community and raising certain raw materials, they have also got claims on the community as enumerated below:—

- (a) They must have a guarantee of enjoying the fruits of their labour, savings and risk-taking from the State.
- (b) Insurance against the vagaries of nature and climate can only be effected on a large scale by the State. The individual is absolutely helpless in fighting the adverse forces of nature.
- (c) The market forces operate blindly and may not always take the form which is good either for the individual or the community. Thus wild fluctuations of prices whether up or down are not conducive to the ultimate good of the economy though some parties may derive temporary benefits. Therefore, it is necessary to guarantee minimum price, announced two seasons in advance of the planting season, and a market within bullock-cart distance at which the agricultural produce may be taken at the guaranteed price.
- (d) The entrepreneurs who constitute the market may not play the game fairly and the unorganised individual farmer would be helpless against any unfair buying and selling practices of the middlemen.
- (e) Even the smaller farmer of today is not a more subsistence cultivator and is dominated by the market economy. This fact along with the requirements of improved agriculture and the lag between his operations and the sale of his produce necessitate credit facilities for him in a new set up. His dependence on the free market (the Mahajan) for credit does not present a favourable record, and here too, institutional credit facilities are indicated.

- (f) Agriculture has been undergoing great changes as a result of the progress of science and technology, specially of chemistry and genetics. All new know-how has got to be demonstrated to the farmer who is necessarily immersed in his own routine problems.
- (g) As we shall proceed with our recommendations, we shall be indicating many new lines for inclusion into the cropping schemes of different localities suitable for them. It would not be possible for stray individual farmers to take up any new line unless the innovation is introduced on a fairly wide scale and marketing facilities are provided for them. For example, if farmers induct into their scheme of farm management, sericulture, lac cultivation, etc., any of these activities must be on a scale to enable the market and middlemen to find it worth their while to collect them.

We may now examine the more important overheads and conditions one by one.

45.1. The State has to create and maintain adequate incentive for agricultural enterprise.— Even when all the material and overhead facilities for agriculture have been provided, it is the incentive for investment and work on the part of the farmer which would make them operative and effective. The State with its sovereign authority alone can create and maintain this incentive and we may examine it first. An appraisal of the factors bearing on rural enterprise shows that there is considerable misapprehension in the rural sector about the attitude of the State towards agriculture and particularly towards rights in land. While attempt at introduction of socialistic pattern of society may continue, the Committee is convinced that employment under State auspices will continue to be only a fraction of the total employment of the country and avenues for self-employment and employment of family labour should be widened as far as possible. Land is obviously the major avenue for such employment. Where improved agriculture is the goal and the improvement involves capital investment on land, enterprise will be shy unless there is security of tenure and reasonable freedom from State interference. The Committee does not consider that capital investment in land will be appreciable to any extent under State management. The Committee recommends that a clear and firm announcement of Government policy on rights in land should be made for a period not less than 25 years along the lines indicated by the Planning Commission in their final report on the Second Five-Year Plan (Chapter XI). Such a declaration of policy is necessary for creating the right incentive for the investment of labour and money for permanent improvement of the farms and for the efforts to reclaim waste land by the farming families. Certain elements of the policy have already emerged and atleast these could be firmly announced. The most important of these is regarding the limit of individual possession in land. By now this State has become reconciled to the idea that individual ownership of land will be limited to 300 acres. There is, however, misapprehension about the restrictions and conditions which will govern this limit of 300 acres. Government policy seems to have crystallised that there would be full play for individual enterprise in land management up to 300 acres so long as ownership does not become passive and management does not become transferred to bataidars. This element of policy should also be firmly announced, namely, that employment of hired labour on farms up to a total size of 300 acres will not be prejudicial to the owner and there will be risk only if management and cultivation is transferred to bataidars. If this part of the policy could be announced with sufficient clarity and firmness, private enterprise will come into play for improvement and development of land. The alternative to free flow of private enterprise is its substitution by Government enterprise which, in the operation and management of Government farms including Government cattle farms, has not proved a conspicuous success. The policy announcement may also emphasise cultivation and land management in a progressive and scientific manner. It will be useful if responsible ministers and leaders of public opinion give sufficient emphasis to this policy which has already

emerged. Details of what constitutes good management, etc. and what would be the right of the bataidars if they are inducted, etc., may be worked out gradually. The encouragement of private enterprise is expected to develop and bring into use waste lands which serves a twofold purpose. It leads to increased production of food and agricultural raw materials, and also to increased employment of human resources in the exploitation of land.

- 45.2. The need of incentive for the small cultivator for the investment of labour in land reclamation.—The farmer has immense employment potential particularly in the plateau areas of South Bihar and Chotanagpur. Hitherto large-scale reclamation of waste land under Government auspices has not been successful because there has not been a clear prospect of follow up cultivation. The law under which waste land can be taken over for a maximum period of ten years and settled with people for reclamation and use has remained a dead letter. The Committee thinks that waste land in close neighbourhood of populated areas should be acquired by Government and settled permanently with people who are likely to bring them into use, whether by family labour or by hired labour. It may be laid down that allotments of blocks will not exceed a particular size. The neighbourhood should be so selected that there is facility for rural credit and marketing within the reach of the people. Where waste land is being reclaimed by private effort, Government help is not reaching the small man or even the larger owner except after a great delay and expense. Administrative procedure should be simplified to make such help available easily and quickly. The system of subsidy for the reclamation of waste land and conversion of upland into paddy fields does not operate in favour of the small man at all. It should be possible to arrange the disbursement of instalments of a subsidy on account as the progresses, to enable poor small holders and landless workers securing the right to reclaim and own waste land from the Government or the Bhoodan organisation, to undertake the work as if they were being paid the wages for the work periodically and regularly.
- 45.3. The provision of irrigation facilities.—Water is the most important limiting factor for intensive farming. A proper maintenance of moisture and of irrigation is not only directly necessary but is also required for the conservation of the integrity of the soil against erosion by air. The direct purpose of irrigation may be (i) to bring water to waste and uncultivated land, (ii) to provide irrigation facilities during the dry season in order to increase the density of the cropping scheme, and (iii) to rectify deficiencies in the distribution of precipitation over the rainy season. The nature of irrigation works would vary according to these objectives as well as according to the geographical conditions. The Committee thinks that as far as possible, facilities for perennial irrigation should be aimed at and our rainfall should be treated as a harvest on a national scale and conserved and utilised with the same care with which any other harvest is utilised. A comprehensive effort should be made to utilise all the available water resources by—
 - (a) larger irrigation schemes covering the main crop areas;
 - (b) smaller schemes at the foot-hills of the hills in the North and South Bihar utilising local rivers and nullas;
 - (c) open well irrigation schemes with or without electric lift;
 - (d) tube-wells in alluvial areas;
 - (e) pumping from river and lakes.

The provision of these irrigational facilities will increase the employment potential directly in the execution of works and indirectly in intensive employment in raising two or three crops in a year in place of one doubtful crop.

- 45.4. A District Irrigation Co-ordination Sub-Committee is recommended for each district.—As irrigation projects are being executed through different departments, a District Irrigation Co-ordination Sub-Committee of the District Development Committee is expected to discharge a very necessary responsibility for planning different types of irrigation works according to the objective and the local conditions as already noted. On the Sub-Committee there should be representatives of farmers, the Subdivisional Officers concerned and the district level officers concerned with the execution of projects of all types including wells. The conditions of the natural control of water vary enormously from area to area, and any planning and co-ordination can be effective only at the district level. The Sub-Committee should therefore prepare a master plan of irrigation giving, major, medium and minor irrigation, both of the lift and flow type, their proper place in the district irrigation plan. The Sub-Committee should see that where one scheme is already in operation no other is started which is injurious to it. We endorse, in this connection, the recent shift in the emphasis to the minor irrigation works as these take a fuller account of the varying objectives and local conditions.
- 45.5. Encouragement to irrigation by wells, tanks and ahar.—In view of the small size of the holdings and after facilities have been provided for irrigation on larger scales beyond the reach of the individual farmer, it should be the policy of the State to encourage all further responsibilities for irrigation by the farmers. For this purpose, the use of wells, tanks, reservoirs for storing and tapping water should be encouraged. Efforts should be made to devise means to overcome the difficulties caused by the closure of the financial year at the end of March in the payment of subsidies for irrigation wells as the wells excavated between April and June are really the most suitable for irrigation purposes.
- 45.6. Large schemes of soil conservation.—This subject has been dealt with in another part of this chapter in its employment aspect. Here it is being emphasised as one of the major schemes which is beyond the reach of the farmer and is clearly the responsibility of the State. The State alone can take up and execute projects to prevent the torrential rains from sweeping across the fields of the cultivators, for the conservation of water in the higher reaches of the catchment areas and for providing the coverage of vegetation wherever land has got steep gradients. The scope of the responsibility of the farmer himself for this work has been dealt with in section 53 of this chapter.
- 45.7. Protection against floods.—This is another responsibility of the State and we have no special recommendations to make on the subject from the point of view which is being dealt with here in view of the adequate systematic measures already being executed by the State. It is assumed that the need of providing consequential irrigation facilities in the areas protected against flood in order to help agriculture and to prevent the regions from becoming devoid of moisture and subject to erosion by wind would be considered simultaneously.
- 45.8. Consolidation of holdings as necessary for large and small holdings.—The subject of consolidation of holdings has been before the State and the public long enough to have brought out all the arguments for it and its difficulties. It is a measure in which the initiative of the State is necessary in view of the mutual suspicion and lack of co-operative spirit among the villagers. Consolidation of plots is absolutely necessary for intensive farming because each plot should be at least of a size to sustain the cost of a well and to utilise its irrigational capacity adequately. Considerable progress has already been made in some other States in the consolidation of holdings. We consider that a certain amount of persuasion as well as compulsion would be necessary to achieve consolidation. We also consider that any complete consolidation of entire holdings may not always be either necessary or desirable in view of the

varying types of land in each holding and village. It should be sufficient for the purposes of intensive farming if the higher level lands and the inundated paddy fields are consolidated separately in each holding. No cultivator would like a consolidated holding which deprives him either of all his *bhith* land or his paddy land.

It may be noted that while consolidation is prima facie desirable for more capital intensive farming on the large and medium farms, it is necessary for the small farm as well for making cultivation more labour intensive. The question of whether farming is capital intensive or labour intensive or both is not merely a question of the size of a farm but also of the type of crop grown. Hence, it is a favourable factor from the point of view of employment that large consolidated farms and plantations can afford, on account of their financial resources, to increase labour intensity, too, on their land.

46. CREDIT FACILITIES.

- 46.1. Different kinds of credit required.—Provision of rural credit of different kinds will give the farmers the wherewithal for good and efficient farming. It should be the aim of the State to see that the farmer is not hampered in the pursuit of good farming by lack of means. Credit whether long-term, medium-term or short-term should be available to him easily and in adequate measure through co-operatives. There was a very comprehensive survey of rural credit conducted by the Reserve Bank of India and the Committee is in general agreement with the recommendations of the Rural Credit Survey. The recommendations of the Rural Credit Survey Committee have become the main basis of co-operative credit system for the Second Five-Year Plan.
- 46.2. Assessment of the requirements.—The Committee initially suggested that a Rural Credit Fund of Rs. 20 crores should be gradually built up and outstanding loans with agriculturists amounting to Rs. 13 to 14 crores should be the constituent of this fund. The question of rural credit was subsequently examined at length in the Development Department and the proposal for the Second Five-Year Plan has been on a somewhat different basis. Short-term and medium-term loans are concerned with the provision of seeds, fertilisers, bullocks, simple agricultural implements, etc. So far as supply of sulphate of ammonia is concerned, the Ministry of Agriculture is arranging supplies to the State Governments on credit and the supply is passed on to the cultivators as seasonal credit. This part of the credit requirement is, therefore, adequately covered.
- 46.3. Assessment of the resources.—The requirement of short-term and medium-term credit for other purposes was assessed at Rs. 12 crores at the rate of Rs. 2 lakhs for a population of area as is covered by a National Extension Block. The Co-operative Department expected that within five years the Co-operative Societies themselves will be able to mobilise about 3 crores of saving and Rs. 9 crores will be supplied by the Reserve Bank. The Committee consider this estimate of requirement as rather low. They are also of the view that the expectation that all this fund will be found from non-governmental sources may not come true. The Committee, therefore, are of the opinion that credit requirement of the co-operatives should be also met from Government resources. For this purpose they suggest that a Rural Credit Fund should be created just as there is a Famine Relief Credit Fund to which credit should be made available from time to time and from which advances could be made to the Co-operative Department if there is any failure of the required flow of credit in the rural areas. For a number of reasons private credit is drying up in the countryside. Even so, it is estimated that Government credit is not meeting more than 20 per cent of the requirement of the rural people at present. Even if Co-operative Credit institutions attempt building up a fund and are

adequately assisted by the Reserve Bank in this enterprise, Government will still have to play a large role. The total outstanding loan in the rural sector is perhaps of the order of Rs. 100 crores and if this has to be replaced by co-operative credit or by credit supply from Government, very large effort is needed. We will have to go even beyond this figure if we want to meet the credit needs which still remain unfulfilled in spite of this large volume of rural debt. The need for a Rural Credit Fund is thus obvious and to begin with all the amount outstanding with the cultivators at present under Agriculturists' Loans Act and under the Land Improvement Loans Act should be set apart to build up this fund.

- 46.4. Management of loans by the Government.—The Committee have felt that management of Government loans through the revenue officials is now a thoroughly outmoded system. The present system of advancing loans suffers from many defects. The requirement is assessed hurriedly. There is no organisation to see if the credit has been used for the purpose for which it was intended. To avail of the loan the cultivator has to undergo much inconvenience and cost. The credit needs of the cultivator are best known to the local co-operative society and it is the society working in the village which should be able to keep a watch on how he utilises his loan. The management of rural credit in the present situation should, therefore, be appropriately a function of co-operative societies and, therefore, the revenue officials should be freed from the management of rural credit as and when co-operative societies are built up. The Committee are gratified to note that the Rural Credit Survey has a similar approach. Whatever amount Government can spare for lending to the cultivators should now go to the Rural Credit Fund from which advances can be made to the State Co-operative Bank, and from them to the Central Banks.
- 46.5. Loans for the relief of distress.—The Committee are aware that all the amounts advanced under Agriculturists' Loans Act and the Land Improvement Loans Act are not for productive purposes. In the last few years enormous sums have been advanced to the cultivators purely to meet conditions of distress and scarcity. It is desirable to separate this kind of loan from loans for productive purpose. The Government may for this purpose have a separate fund called the National Insurance Fund. The Famine Relief Fund may be one of the constituents of this fund. Such loans, however, should not be advanced under the Agriculturists' Loans Act or Land Improvement Loans Act which only cover loans for productive purpose.
- 46.6. A rationalisation of the system of making of advances is necessary.—The channel of rural credit should be so organised that on a consideration of all relevant factors, i.e., actual requirements, the expected crop yields, the repaying capacity, not necessarily land security, etc., maximum cash credit requirements of different cultivators for different purposes may be properly assessed and indicated, in advance, in a pass-book issued in Hindi to the cultivator. The authority who will make the credit available to the farmers, should also be indicated in the pass-book. In fixing it, easy accessibility of the locality in all seasons with the Headquarters of the Authority, will be taken into consideration. The cultivators should be then able to draw from the Central Cooperative Bank or any other authority mentioned in the pass-book, amounts as and when required. The pass-book will show all drawals and repayments made by the cultivators. The cash credit facilities may be made available without a security even if a cultivator has no land of his own. While there should be no enquiry at the times advances are made on the pass-book once the maximum credit has been fixed, there should be frequent check-up whether the amounts drawn have been properly utilised. If the loans are not utilised in the prescribed manner, amounts advanced should be made immediately recoverable and if a cultivator frequently misuses funds the cash credit facilities should be curtailed or withdrawn. It should also be provided that overdue loans may be recovered as a public demand. While it may take time to achieve this organisation over the entire State, it is essential that pilot projects

should be taken up immediately in a few well developed Community Development Blocks where the contingent of supervisory staff of the Co-operative Department is available. In such blocks every cultivators' requirements of short term and medium term credit should be worked out and pass-book issued and every holder of the pass-book may be authorised to operate his cash credit facility with the relevant Central Bank. Details of the pilot projects should be worked out by the Registrar of Co-operative Societies and put up to Government for sanctioning without delay.

- 46.7. Long-term credit.—As for long-term credit, the Co-operative Department have put the requirements in Bihar at Rs. 100 lakh during the Second Five-Year Plan. The Development Department expect to get this financial accommodation from the Reserve Bank and from the issue of debentures of the Land Mortgage Bank. A Central Land Mortgage Bank is to be organised during the Second Five-Year Plan period. There would be no primary Land Mortgage Bank but 30 Central Co-operative Banks will act as the agents of the Central Land Mortgage by the end of the plan period. The arrangement of long-term credit through the Land Mortgage Bank as proposed by the Co-operative Department is considered adequate by the Committee. If the Land Mortgage Bank needs extra assistance, Government should be able to provide it from the Rural Credit Fund suggested above.
- 46.8. The Agricultural Credit (Relief and Guarantee) Fund.—The Rural Credit Survey Report also recommends the setting up of a State Agricultural Credit (Relief and Guarantee) Fund. This fund would be utilised to write off arrear of debts of cooperative institutions which have become irrecoverable due to causes beyond the control of the co-operative institutions concerned, such as, widespread chronic famine. In the Second Five-Year Plan, provision is being made for State contribution to this fund of an amount of Rs. 20 lakh at the rate of Rs. 4 lakh every year. Half the dividend on share held by the State Government in the various co-operative societies are also to be credited to this fund. The Committee consider this measures to be useful.
- 46.9. Projection of credit requirements.—These considerations and proposals are mainly based on the existing data and it is not easy to calculate even approximately the credit requirements of the agricultural sector if our hopes and recommendations for the intensification of agriculture bear fruit. It may, however, be noted that improvement on these lines is likely to increase the assets, credit-worthiness and managerial capacity of the cultivators and tend to make repayment easier than has been the case hitherto. If and when this trend sets in, the rural credit system would be put on sound lines to operate smoothly in consonance with the needs of a healthy and growing economy.

47. MARKETING AND WAREHOUSING.

47.1. Co-operative marketing and warehousing.—Apart from the provision of adequate credit in the manner indicated above, the Committee consider it necessary to free the surplus producing farmers from the worry of storage and disposal of the crops. This can be done by organising co-operative marketing and warehousing. Co-operative marketing societies differ from warehouses in that such societies make out-right purchase of produce of members who may offer it for sale. Thereafter the marketing societies sell the produce at their own discretion and undertake the risk of gains and losses. It is doubtful if marketing societies in adequate number can be set up so that the farmer is able to find an assured market for his produces, and having made his sale to the co-operative marketing society has nothing further to worry about price fluctuations, etc. Undoubtedly the State Government have for the Second Five-Year Plan certain schemes of co-operative marketing. It is proposed to reorganise the State Co-operative Marketing Union by making the State Government the major share-

holder and also organise other co-operative marketing unions. The number proposed in the Second Five-Year Plan is, however, utterly inadequate and the Committee think that the solution must be sought mainly through an increase in the number of warehouses. During the Second Five-Year Plan the Bihar State Warehousing Corporation has been established recently and steps are being taken to set up four warehouses to start with. It is proposed that the State Warehousing Corporation should set up 20 warehouses during the plan period. The co-operative marketing is also expected to set up 30 warehouses. As indicated earlier, however, the possibilities of co-operative marketing societies appear to be limited. The Committee, therefore, consider that apart from the warehouses at important places set up by the State Warehousing Corporation there must be a large number of other licensed warehouses. The State Government may expect the private sector to set up such warehouses and may make a grant of half the cost of building such warehouses. In case there is any legal difficulty the Act may be modified. It is desirable that such warehouses should be set up at least in the area roughly covered by the National Extension Service Blocks. Later as business develops, more warehouses may be put up. These warehouses will be concerned with storage and grading of produce brought by the cultivators and give them an acknowledgement of the quantity and kind of produce held in deposit by the warehouses. The certificates of deposit by the warehouses should enable the cultivators to obtain advances up to half the value of the produce at the current market rate from the Central Co-operative Bank.

- 47.2. Warehousing of cash crops.—Warehousing and marketing are particularly important even for the small cultivators in case of money crops. Marketing of chillies, potatoes, tobacco and jute requires special efforts and warehouses suitable for the purpose should be established so that the crops are safely stored and graded and the producer is able to get adequate advances on them. The Committee consider warehouses as likely to generate some new and stable type of employment.
- 47.3. Cold storage.—It is gratifying that the number of cold storages mainly storing potato, has been increasing as a result of private enterprise and financial aid from the Bihar State Financial Corporation. Its employment potentials have been treated in the Appendices. It is being mentioned here as providing an incentive for the expansion of a highly labour intensive line of cultivation which also contributes to the density of the cropping scheme.
- 48. Adequate transport facilities.—Both the Centre and the State Government are so much alive to the need of an adequate system of roads that the Committee has no special recommendations to make regarding roads required for linking the villages with the main roads and railheads. The subject has been dealt with in its employment aspects in another chapter. It may, however, be mentioned here that, with regard to the money crops specially, the price incentive can work effectively only if the cost of transportation of a commodity does not make serious inroads into the price received by the grower. For example, many areas of the State are still so far away from the railheads that the heavy transport charges by bullock carts cut down the net amount which the cultivators receive for their commodities and thus set a limit to the intensity of farming which may be otherwise expected.

49. THE PLACE OF VOLUNTARY INSTITUTIONS.

49.1. Need of external initiative to foster co-operation.—The old village communities had a strong tradition of co-operative efforts. It is still strong in many of the tribal areas. The old joint-family was a natural co-operative organisation. But as a result of the emergence of individual land holding and the taking over of most of the functions of the village community by the Government under the British

rule, all these traditions have disintegrated. The result is that even though the individual farmer feels helpless under the impact of the market forces, he can show no initiative to organise himself with others. Evidently external efforts are necessary for organising the farmers for common purposes and objectives.

49.2. But ultimately co-operation should be voluntary.—It has, however, got to be noted that co-operation presupposes the existence of a sturdy through responsive individualism because the very spirit of co-operation is to guard the individual both against capitalist exploitation as well as against socialist regimentation. Recent history of socio-political trends in many countries shows how the co-operative organisation may become an engine for political and social regimentation. And yet the co-operative may provide the only means by which the farmer can improve his bargaining power in the purchase of many of the articles he requires, for the sale of his produce, for satisfying his credit needs and for various other purposes. The co-operative organisation is the most varsatile social institution which can take on any kind of function; so much so that the original enthusiasts dreamt of even neutralising the coercive authority of the State itself through co-operation. Hence, even though the initial efforts for fostering co-operation may have to come from outside, the ultimate objective should be to make the people take to co-operation of their own choice.

50. THE RESPONSIBILITY OF THE FARMER.

- 50.1. The will to work of the farmer as the core of the problem.—After the environmental or overhead facilities have been provided, the responsibility for delivering the goods is squarely on the head of the farmer. It would be a serious danger to society, individual freedom and democracy if the farmers fail to discharge their responsibility and are not able to feed the nation. Such a failure may force social efforts into the channel of regimentation as in China. On the other hand, if the farmers are able to respond to the stimuli proposed, they may not only be able to provide full employment for themselves and to cure the State of under-employment, but may even create additional employment to some extent for the landless workers, too. However, in this chapter we are mainly concerned with the full employment of the farmers. We know that the two problems of the agricultural and rural sector are firstly, the existence of a redundant population on land, and secondly, the want of gainful work throughout the year for all. The first problem would be met mainly by our recommendations on mass employment. The series of recommendations here mainly aim at solving the problem of under-employment of the farmers themselves. But to the extent to which the measures recommended here become effective, it is quite possible that the demand for agricultural labour, even by the small and medium farmers would expand during the transitional period before the small and medium farmers are able to afford investments on small farm machineries as in Japan.
- 50.2. Even a small but thorough farmer may not be in need of subsidiary industrial occupations.—After we have examined the details of intensive farming, we shall realise that farming is a highly complex and skilled profession and even the small farmer is an enterpriser and risk-taker, an agronomist and meteorologist, a manager and an employer, a foreman and a worker, all at the same time. If by increased density of his farming routine, as will be seen presently, the annual volume of his work increases, there would be no need for bringing in into his routine of work any industrial or craft activities which do not arise naturally out of his agricultural activities to fill in his time table of work. The idea of introducing cottage industries and other occupations as subsidiary to agriculture, which has by now become a traditional method of approaching the problem of under-employment, should be re-examined. Subsidiary industrial occupations would be necessary only for the very small holders in the rural areas who are statistically lumped with the landless class and for whom

it is really cultivation which is a subsidiary occupation. The occupation of farming, if done intensively, is a jealous mistress and would leave little room for any serious engagements for the farmers outside the normal routine of farming, though the diversification of our rural economy as a whole is urgently called for. Moreover, any diversion of the regular farmer's attention to non-agricultural activities not falling into his own line would not only be unnecessary but would also limit the scope of employment of the landless and of the tiny holders in the rural sector and of the craftsman.

50.3. There should normally be no under-employment if intensive farming is introduced.—After we have examined the full significance of intensive farming we shall come to the conclusion that, provided the major external or overhead conditions of farming have been achieved, there would always be such a richness of choice about the volume of work before the farmer that if he is not fully employed, it would turn out to be a case merely of voluntary under-employment or relative preference for leisure to work. It would, therefore, be useful to undertake investigations into the attitude of farmers towards work in places where farming is not intensified even if prima facie the external factors appear to have been fully provided for. We recommend, therefore, that the proposed employment planning organisation or the Department of Agriculture may take up such investigations in order to discover other handicaps to intensive farming which may not be apparent so far.

51. THE STRUCTURING OF THE PATTERN OF INTENSIVE FARMING.

51.1. The reason why a planning of the structure of intensive farming is necessary.—
The farming family, for example, around Peris or in Denmark or even in our own Koiri community, just inherits the pattern of intensive farming from generation to generation. It has already been structured by the accumulated experience of time. Any agronomic innovation is almost unconsciously fitted into the general pattern which is also flexible enough to be adjusted to the preferences of a family. In our own country the pattern has got to be structured by placing together the knowledge and experience which is already there and into which suitable innovations may be inducted. Such a pattern can be quite flexible to suit the preferences and working capacity of the family, as we shall see, with varying emphasis on cereal growing, cash crops, livestock, etc. But what is important is that these patterns are built up and become a part of the social heritage and farming habits of the people. An innovation not only in the pattern of farming but also in the attitude and haits of the people is called for.

51.2. Method of building up the pattern.—The details of the pattern of intensive farming would vary from placeto place even within the same administrative district or than a according to the conditions of soil, climate, water-supply, transport facilities, distance from the market, etc. For example, we expect quite a different pattern in the areas within the reach of urban and industrial centre: from one in the interior and isolated regions. The pattern in the typical paddy area would differ from that of the upland regions. For this reason, we recommend that the scheme of village planning which the Department of Agriculture has already drawn up should lay emphasis on the planning of intensification of agriculture under varying conditions. We also recommend that the Block Development Organisation should devote special attention to the working out of the patterns of intensive farming in consultation with the more enterprising and intelligent farmers of the locality. Local consultation would be necessary both for avoiding errors as well as for enlisting the enthusiasm of the people. While the ultimate objective should be to let the individual farmer think out for himself, technical advice, guidance and even demonstration would be necessary when inducting new items into the routine of farming. Moreover, the induction of any new item would not be successful unless the marketing of the produce is also organised.

- 51.3. Flexible models of regional patterns may be useful.—Local variation in agricultural condition may go along with certain broad regional uniformities. It is not unusual that the different potentialities of a region are not known to the people and are discovered by accident, sportive trials or systematic experiments. Very often intelligent farmers themselves have introduced valuable innovations, as for example, the cultivation of the rainy season potato in Ranchi or of winter paddy in the Kosi belt. Such initiative should be encouraged along with systematic experiments. But the broad regional potentialities are fully known. It is, therefore, necessary that the knowledge of these potentialities are brought to the notice of the cultivators where they are not known. It is reported that the cultivation of many of the crops now undertaken in the plateau region was originally popularised by missionaries and primary schools.
- 51.4. The basic features of a pattern for Bihar.—The broad outline of the pattern of intensification of farming within which the details would be adjusted to the local conditions may now be indicated. It is brought into relief by the observation of what should be done but is not being done. It would consist of the following activities—
 - (i) Activities for improving the physical features of a holding or its constituent plots.
 - (ii) Initial and annual work for maintaining the integrity of the soil.
 - (iii) Work for improving and maintaining the fertility or nutrition of the soil.
 - (iv) Work relating to the conservation and use of water.
 - (v) Generation of additional employment by increasing the density of cropping and inclusion of new major crops, buffer crops or fodder growing according to the conditions favouring any of these lines within the choice of the farmer.
 - (vi) More intensive cultivation of any one or more of the crops raised or inducted like the Japanese or Chinese method of paddy cultivation. Specially selected labour intensive crops like tobacco or potato may be included in the routine.
 - (vii) Adjustment of the size of the farm live stock to the available labour force of the family.
 - (viii) The induction of such subsidiary activities like bee-keeping, gur-making, lac-culture, arboriculture, etc., which naturally fit into the routine of farming.

We may now take up these items one by one. It should be clear from a consideration of this outline of the pattern that there should be no question of underemployment of the farmers if the incentive and stimuli for work, which we have considered, are effective and the farmers respond to them. It is a different question if the farmers prefer to enjoy leisure in order to avoid hard work.

- 52. IMPROVEMENT OF THE PHYSICAL FEATURES AND OTHER DURABLE WORKS.
- 52.1. Improvement and protection of the land.—The measures for soil conservation, afforestation and whatever else might be necessary for controlling the adverse conditions of nature on a large scale are clearly the responsibility of the State. But

they do not exhaust everything which has got to be done. Wherever the plots are of a viable size, or have been consolidated into such a size or the farmers can come together co-operatively for the work, there is considerable scope for a proper levelling of the land, for drainage works and similar other kinds of permanent improvement. Many of these improvements are taken up even on small plots. Enterprising farmers are seen even to change the texture of the soil by carting earth of the complementary type from elsewhere to their own plots for the purpose. Even a cursory inspection of the holdings in the plateau and foot-hill regions would show the scope of work awaiting to be taken up in this respect. All plots of a viable size in such regions would benefit from having their own smaller aharas and contour bunds. The planting of shrubs, bushes and other vegetation on the aharas in the plateau and foot-hill regions, or wherever there is an appreciable slope of the land, is necessary for strengthening the aharas and the bunds. The construction of such contour bunds in the individual plots cannot be a responsibility of the State and has got to be taken up by the farmers.

- 52.2. Wind-breakers and enclosures.—The planting of border bushes, shrubs and hedges is sometimes seen in the fruit growing areas of the plain as well as the plateau to serve both as wind-breakers as well as protection against cattle trespass. The practice requires to be adopted on a wider scale even for other crops. Moreover, the open-field system of cultivation still prevails in India though there is no legal bar to enclosures by hedges or other means. The open-field system is a great handicap to intensive farming and there is no reason why plots of viable size should not be protected. Again, green enclosures would be useful also for preventing soil erosion by wind in the dry season. All such activities may be taken up by the farmers in the slack season. And when once the work has been completed, the annual maintenance itself would provide employment and self-employment as a recurring responsibility. Again, the pruning of the hedges should provide materials for fuel as well as for green manure, and, may be, also for fodder if the hedges are of a suitable variety of shrubs for the purpose.
- 52.3. Measures for the conservation of the integrity of the soil.—While nature works at high pressure in helping the growth of vegetation in the tropical regions, this pressure does sometimes affect the interests of man adversely. Thus our country is subjected to the extremes of climatic conditions which affect adversely the integrity of the soil. The valuable top layer of soil is subjected to erosion by water during the rains and by wind during the dry season. Hence large quantities of the top soil which nurture plant life are lost every year. The State undertakes large-scale measures to prevent denudation and to preserve the integrity of the soil by afforestation and large scale anti-erosion measures. But erosion ultimately takes place on the individual plots and it is the responsibility of the farmer to take suitable measures against it. Much of what has been mentioned in the last section would also constitute anti-erosion measures and the farmer has got to understand this benefit of the permanent improvements already indicated. In many areas the farmers know what to do. In other places these measures would be innovations and are to be publicised and demonstrated.

53. Conservation and Improvement of Soil Nutrition or Fertility.

53.1. Green manuring.—In order to provide nutrition for the plant, the soil itself requires nutrition. This is provided by an appropriate system of rotation, ploughing and soil aeration for helping the growth of beneficial bacteria and by the application of manures. Beyond throwing of some untreated farm dung left over after utilising it as fuel, not much is done by the average farmer for improving and maintaining the fertility of the soil. The routine of work of the farmer can be filled up to a certain

extent with great resultant profit if he devotes some time to hedge-culture and arboriculture to provide himself with materials both for fuel and for green manure. The value of green manuring has been fully established by chemical and bacteriological analysis as well as by widespread experiments. The annual report of the Indian Council of Agricultural Research for the year 1957-58 mentions that whereas the use of chemical fertiliser raised the yield of paddy per aere to only 27.21 maunds, the yield of the fields under green manuring rose to as much as 31.77 maunds.

- 53.2. Composting.—In spite of considerable publicity work, composting has not been integrated into the farming routine of the people. Green manuring and the use of composts hold the key to the maintenance of fertility and would be absolutely necessary if intensive farming with its added strain on the soil is introduced. The work of composting involves much thoughtful and painstaking routine work and would provide self-employment to the farmer for a considerable number of mandays in the year which would be equated in terms of money value saved from the purchase of fertilisers as well as the value added to the produce.
- 53.3. Clean farming.—The husbanding of the vegetable resources from shrubs and hedges and from the threshing grounds as well as the careful collection of animal droppings and urine from the cattle stalls would also build up the tradition of clean farming which is generally absent in our countryside.

54. Conservation and Use of Water.

- 54.1. Importance of water conservation.—Water holds the key to the intensification of farming. After the responsibilities for large irrigation works have been discharged by the State, much remains to be done both independently of large irrigation works as well as for utilising the facilities afforded by the works of the State. This is the clear responsibility of the cultivator. For intensive farming, irrigation has got to be a normal item of employment on the large and medium farms and of self-employment on the family farms. An examination of the records of the variations in the distribution of rainfall from year to year and of the consequent differences in the outturn shows that the care of water should be as much the concern of the farmer as the care of the land itself. It would be worth the while of a farmer to set aside even a fraction of his holding for storing rain water for meeting deficiencies in precipitation towards the latter part of the Monsoon when the Hathia showers fail.
- 54.2. Irrigation and intensive farming.—Water and moisture in the soil are necessary not only for the nutrition of the plant life but also for making an effective use of manures and fertilisers. Moreover, the entire system of intensive farming hinges on the increased dendity of cropping and intensive treatment of many individual crops. Most of the latter like potato, onion, etc., require frequent watering. Finally, all hot weather cultivation requires large quantities of water.
- 54.3. A large number of mandays required for conservation and utilisation of water.— For all these reasons, the cultivator is to be encouraged to fill in his time-table for work by constructing his own channels of tube-wells, for excavating even small tanks and for digging wells. It is desirable that as far as possible, the farmer should be able to command his water-supply under his own control. The use of the water resources and the maintenance of the works would mean the addition of a considerable number of days to the programme of work of the cultivator.

55. THE DENSITY OF THE CROPPING ROUTINE.

55.1. Flexibility of the structure of the cropping scheme.—The density of the cropping scheme is made up of the number and succession of the various crops grown in course

of a year. The Committee sought to collect materials for drawing up an ideal scheme of an optimum density of cropping. But it was discovered that apart from suggesting the broad principles, the Committee could not proceed with the work for two reasons. Firstly, the pattern of the density would depend so much on the physical and economic factors in each locality that no standard scheme would be useful. Secondly, the work involves some intimate knowledge of both the science and practice of agronomy in laying down the rotational scheme. Hence it has already been recommended that the entire work of employment planning for the farmers should be taken up village or localitywise by the Block Development Organisations.

55.2. Wide regional variations in the farming practices which have no justification.— The Committee has, however, drawn certain conclusions about the spells of unemployment in the different villages under the Sample Survey. It has also conducted certain investigations in the cultivation of certain crops and the results have been summarised in this chapter by way of illustration to show how the induction of the cultivation of jute, potato, etc., would tend to eliminate under-employment in the agricultural sector. The Committee were led to these investigations by the discovery of very wide divergences in the cropping schemes of different localities. It was discovered that even under quite favourable soil and climatic conditions for more intensive farming, the cultivators are satisfied with merely growing a single paddy or rabbi crop in most parts of the State. On the other hand, in a good number of localities the land is continuously under a successsion of crops throughout the year with very limited and regulated rest pauses for the soil. Then there are certain cultivating castes who practise highly intensive farming wherever they are. In this way we get ideal pictures of intensive farming side by side of the general prevalence of very careless and primitive types of farming. Such differences are visible even in the same village.

55.3. The usual annual routine of agricultural employment.—The usual routine of the main farming operations is described below. But the routine indicates what can be and not what is done everywhere as a rule. Nor does it exhaust all the possibilities. As may be noted, quite a number of labour intensive crops have not been mentioned because quite a number of separate alternative schemes are possible.

Broadly, Aswin and Kartik are very busy months for the harvesting of many rainy season crops like, maize, marua, various small millets except kodo. Side by side, fields are being prepared and the sowing of wheat, barley, peas, mustard, ma oor, khe ari, potato, sweet potato, kul.h; etc., is going on. It is also the time for sowing various fruit bearing creepers and cold weather vegetables. Further, there is some employment in harvesting marooned fish.

Aghan, too, is a fairly busy month because early variety of paddy starts being harvested. Urd also is harvested in this month. Barley may continue to be sown and broadcast sowing of khesar, gram, linseed, etc., is carried out.

Work is less strenuous in *Pus* and *Magh* except for the harvesting of the main paddy crop. Fields are ploughed and manured in preparation for the planting of sugarcane.

In the month of Falgui, the broadcast sowing of low-land paddy and mung is carried out. Where conditions are favourable, Cheena, early marua and Jethua maize are also sown. The major Rabbi crops start being harvested.

In Cha t and Baisakh, those farmers who cultivate Rabbi crops are busy with the final processes of harvesting and with preparing the land for the coming ruiny season cultivation. But the usual time-table admits of the induction of dry weather irrigated farming of many buffer and fodder crops.

Jeth and Asharh are again busy seasons when Bhadai maize, marua, arhar and urd are sown along with the large variety of quick growing small millets.

Sawan and Bhado are the busy months in the paddy areas when transplantation is done according to the conditions of rainfall. But the work is not at all continuous and comes in spurts according to the volume and timing of rainfall.

56. INTENSIVE CULTURE OF INDIVIDUAL CROPS.

- 56.1. Minimum and flexible intensiveness.—The subject of the density of cropping is distinct from the intensive treatment of any single crop. The intensity of cultivation in terms of the application of labour and also other resources like manure at different stages may be pitched at different levels with reference to any particular crop. The number of preparatory ploughing, the intensity of manuring, the number of irrigation and of weeding and other operations may be varied above a minimum for each kind of crop. There are crops like tobacco and potato which require a very high minimum level of intensity. On the other hand deep water paddy does not involve any intensity of labour or manuring while transplanted paddy may be treated more or less intensively according to the choice of the cultivator. A specific example of how painstaking farmers may create additional profitable employment by utilising the scope for intensive farming may be given here.
- 56.2. An example of flexible intensiveness.—Apart from the other operations, the Japanese method of paddy cultivation requires the fertiliser to be spread between the lines of plants and then it is puddled by hand spade or with a wheeled puddler. The fertiliser may also be mixed with earth and made into balls. A resourceful family in the Ranchi district with a large number of children adopted the system of mixing the fertiliser in clay, making small balls out of it and then inserting one ball by hand under the root system of each growing plant separately. It was reported that, as a result of this device, not only was there a saving in the quantity of the fertiliser used but that the outturn was higher than in the plot cultivated by the standard Japanese method. We cite this as an example of how agricultural operations may be planned to utilise additional labour force available in a large family and how the intensity of farming may be pitched at a level required for providing additional fruitful employment.

57. THE FARM LIVE-STOCK AND INTENSIVE FARMING.

- 57.1. Manifold values of the live-stock.—The farm live-stock is a socially useful and economically profitable employment creating factor on a holding. It is socially useful as providing animal products in the food resources of the nation, draught power for the farm and 75 per cent of the energy or heat used by the country through cowdung. It is almost the only source of nutrition for the soil through farm-yard manure. The employment created by the live stock is of special value in that it provides work not only for adult males but also for women and children. It imparts a valuable flexibility to the management of the farm because the size of the live-stock can be adjusted to the volume and composition of the labour force of the family. As in Europe, the farmer may use the live-stock as his investment and incidentally increase his income as well as credit-worthiness.
- 57.2. The size of the farm live-stock in relation to employment.—The typical family farm which we have visualised as the norm would have on the farm at least a pair of bullocks if the family itself is at its full strength. Shri S. R. Bose had calculated some year back one aspect of the intensity of farming bearing on the present point. He showed that taking into consideration the number of draught animals (bulls, bullocks)

and male buffaloes), the number of acres sown per animal varied from 1.5 in Bhagalpur to 4.2 in Saran and Champaran in 1944-45. The average area sown per plough was 10.2 acres in the second decade of the century and 7.2 acres in 1946. There were, however, very wide inter-district variations ranging from 11.1 acres in Champaran and 10.6 acres in Saran and Darbhanga to 4 acres in Bhagalpur, Dhanbad Singhbhum. It may, however, be noted that there is a much larger number of farm animals in those districts which have large forest and waste land areas than in the densely cultivated districts. The normal minimum size of the farm live-stock is a pair of bullocks. But if the family is without an adult male head, the widow may just manage with one bullock. On the other hand, in case of the family being larger, the size of the live-stock is adjusted to the larger labour force of the family by having a pair of stronger bullocks suitable for bullock-carts also, and by adding one or more cows and she-buffaloes to the stock. In certain areas calves are reared for being sold as bullocks at the appropriate age. In these ways the live-stock introduces a flexibility in the management of a family farm and in the planning of full employment according to the size of the family.

Since the enforcement of complete ban on cow slaughter of both sex and all ages, the animal population on the farm, which is excessive at present, will further increase and compete with the farmer for the products of the land. We, therefore, recommend that castration of all bulls not required for breeding should be made mandatory. This will also lead to improved breeding of the live-stock. We also recommend a number of specific schemes so as to suit the requirement of good farming in the succeeding sub-sections.

- 57.3. Employment value of stall-fed dairy animals.—This aspect of the economy deserves special consideration both from the point of view of the supply of food resources as well as of employment. It is known that pasture farming for dairy products or meat animals is only suitable for the wet regions of the world where there is rainfall throughout the year and surface evaporation of the moisture is not high as in the tropical regions. Hence in most parts of Bihar, cattle-rearing and dairying is only possible by stall-feeding. The practice of extensive pasturing in the plateau and foot-hill regions is really an outrage on the soil and quite unfruitful as shown by the type of scrub animals visible and complete lack of their dairying value. This necessity of stallfeeding emphasises the possibility and desirability of mixed arable-animal husbandry and a natural integration of these two wings of land utilisation. Systematic stallfeeding requires appropriate supply of fodder and more nutritive feed. The growing of fodder and roots for animals is another link in the density of cropping. But this side of farming practice has got to be popularised in Bihar. It is already being practised even in some regions which are drier than Bihar. The cultivation of fodder crops has got to be popularised. Sweet potato, which grows so easily in Bihar, is a very valuable cattle feed.
- 57.4. Cow-dung gas plant.—The use of cow-dung for generating gas has passed beyond the stage of experimentation and it is recommended that the use of this type of gas plant may be one of the methods for bringing home to the cultivators the amenities of life which may be secured by the co-operative method.
- 57.5. The place of bullock-cart in rural economy.—The bullock-cart continues to be the subject of adverse remarks. But it is impossible to under-estimate the value of this means of conveyance on the farm itself and as a subsidiary source of employment. It has been noted elsewhere from another point of view how it came to us as a pleasant surprise that in one of the sample villages near a large urban area, there was hardly any under-employment on account of the ownership and use of bullock-carts for hire by the cultivators of the village. It is known that most of the link roads between villages and main roads can only be negotiated by bullock-carts. Our

investigations have revealed that even on the metalled roads on which trucks enjoy special tractive advantages, the ordinary steel-tyre bullock-carts are successfully competing with the trucks for business up to a distance of twenty, and even thirty miles. The rubber-tyre carts are able to compete over much longer links. It may be noted in this connection that the average length of haul of the non-perishable goods carried between villages and markets or rail-heads is not very much above these lengths. Bullock-carts have also been found to be used profitably in even long distance through traffic in grains, potato, spices, onion, coal, etc., where other means of conveyance are not available. We recommend that as soon as the practicability of the device is demonstrated, the fruits of the experiments being carried on for improving the tyre, axle and wheel of the bullock-cart should be duly published and demonstrated in the Development Blocks.

- 57.6. Live-stock and irrigation.—The strength of the live-stock is intimately connected with well irrigation. We think that wherever individual plots of Bhih land are of a viable size so that it can utilise the capacity of a well, the bullock-driven Rahat would be more suitable for irrigation than power driven pump. The Committee collected certain data on their relative economies, but could not conduct the investigation more extensively. The tentative conclusion was that the Rahat guaranteed sufficient discharge for the small family farm and provided more employment for the farm animals and men. It did not entail the additional cost of any power oil since much of the irrigation work is done when the bullocks are not busy with the plough. We recommend further investigations in the employment potentials and economy of the Rahat from the point of view of the under-employment of the farmers and of the rural craftsmen who would be provided with the work of manufacturing and repairing Rahats.
- 57.7. Measures to control open grazing.—In course of our rural survey, we received reports from many places of the State, specially the plateau regions, that the soil of the area is capable of yielding more than one crop, and some farmers are also willing to grow it; but they do not actually cultivate second crop for fear of being grazed by the cattle who are let loose after the harvest. We, therefore, recommend that suitable measures be taken to control open grazing.
- 57.8. Establishment of plants to process fallen animals.—We refer here to our recommendations in section 97 of chapter IX for establishment of plants to process fallen animals in the rural areas. There should be a scheme for incentive payment to those who bring fallen animals to the centres of the plant.
- 57.9. Other kinds of farm live-stock.—We are not considering pigs, sheep, poultry and the rearing of insects here because they do not seem to be normally integrated into our farming practices on a wide scale as yet. They have been considered in the Appendices. Sheep farming is a specialised occupation. But goats do find a regular place in the farm live-stock of the poorer families and provide some employment for the children.
- 58. Subsidiary occupations for the cultivators.—It can be realised how, as already noted, the normal routine of work of the cultivator can be fruitfully intensified to such an extent that it would be neither possible nor desirable to induct into farm management any exotic activities. There are a number of activities and occupations allied to agriculture which may be introduced as a part of the farm management according to the extent of the under-employment of the farmer if the holding is small. The results of a number of specific investigations are summarised in the appendices to this chapter together with remarks about the extent to which each can be integrated into the routine of farming. Some of the occupations are naturally integrated to the work on the farm. The use of bullock-carts as a subsidiary occupation or gur-making are examples. There are other occupations which would be possible only

if the family holding is too small to allow full employment even by an intensification of cultivation. This class of employment tends to shade into regular vocations of the small artisans and family industries which have been examined separately under the secondary sector.

- 59. Concluding Remark on the Scheme of Cropping Density and Intensively Treated Crops.
- 59.1. Variation in and models of cropping schemes.—From what has been said already and from what would be gathered from the Appendices to this chapter, it would be clear that there need not be, and will not be, any standard pattern or structure of the cropping scheme for even the same locality and the village. There would be wide scope for the play of individual choice and preference which is the very essence of freedom. It would, however, be desirable to construct a number of schemes for each locality within the limits of the controlling factors as models so that the broad outlines as well as the scope for variations are brought out. The flexibility of the patterns to suit individual holdings and the size and preference of the families is quite essential.
- 59.2. Calculation of the employment potential of each pattern.—As materials for calculating the employment potentials of the different models of cropping schemes are available to a certain extent but are not complete, further data on the number of mandays or fractional mandays required for many of the activities listed may be collected or calculated by the proposed employment planning organisation so as to have the necessary materials for the quantitative estimation of employment of each model.
- 60. Employment on plantations.—Subdivision 0.3 of the Census tables classifies employment on plantations in the non-agricultural sector. This subdivision takes into account the workers, employers and the self-employed in tea, coffee and rubber plantations but does not include the sugar cane, betel—leaf and other plantations where the work is taken up along with other agricultural activities like cereal growing. We need not consider this class of employment here because the total number of persons in the subdivision was only 616 in 1951. It is likely that the researches and experiments which are under way in Chotanagpur under the Department of Agriculture may give rise to large-scale orchard industries for growing grapes, cashew-nut and citrus fruits. But fruit growing is counted as a part of the agricultural use of land in the statistical returns and not as a plantation industry.

61. THE APPENDICES TO THIS CHAPTER.

61.1. The appendices are not exhaustive but only illustrative. They are mainly concerned with employment values.—An attempt is made in the following Appendices to indicate the lines on which the employment potentials of some of the constituents of intensive farming may be worked out. We are not concerned here directly with the technique or agronomy of their cultivation, nor with the other aspects like food values. But the place of any one of these crops or of any other crop which may be studied in the dynamics of the consumption pattern of a growing economy is of significance from the employment point of view as indicating the shifts in the structure of demand for farm produce, and so in the relative demand and Aggregate demand for labour devoted to them. It may also be noted that the appendices are illustrative not merely of agricultural crops but include other items of productive activity which may be fitted into the managerial and working programme and time-table of the farmer. In fact, we have considered the farm economy in a comprehensive sense throughout our examination of the subject of intensive farming.

- 61.2. The appendices show the method of calculating labour intensiveness and employment potentials.—Although we sought to collect data for estimating the additional number of mandays which each crop or activity would add and the place of each in the pattern as well as in the annual time-table of farming, our resources did not permit exhaustive investigations. For these reasons, the calculations and the remarks in some of the appendices are to be treated as merely illustrative of a methodology for more comprehensive calculations covering all such activities. The Committee thinks that this line of investigation deserves to be undertaken for a large number of specific crops and activities in the two aspects of additional labour intensiveness and the scope for filling them into the time-table of farming.
- 61.3. List of the activities examined.—The following is a list of the activities we have examined more or less intensively. The results are summarised in the Appendices very briefly. It is proposed that some of these studies in the employment potentials of specific activities may be printed and circulated in greater details:—
 - (i) Fish-cum-paddy culture.
 - (ii) Buffer crops.
 - (iii) Jute.
 - (iv) Tobacco.
 - (v) Potato.
 - (vi) Onion.
 - (vii) Palwal.
 - (viii) Chilli.
 - (ix) Chewing sugarcane.
 - (x) Sweet potato.
 - (xi) Ginger, turmeric, etc.
 - (xii) Betal vine.
 - (xiii) Bamboo.
 - (xiv) Fibrous, cellulose and tanning materials, fodder and fuel.
 - (xv) Aromatic plants.
 - (xvi) Banana.
 - (xvii) Papaya.
 - (xviii) Fruit growing.
 - (xix) Vegetable growing.
 - (xx) Other farm activities.
 - (xxi) Sugarcane crushing.
 - (xxii) Gur and Khandsari in the Scheme of Khadi and Village Industries Commission.
 - (xxiii) Bullock cart transportation.

D. ANIMAL HUSBANDRY, REARING OF SMALL ANIMALS AND INSECTS AND FISHERY.

62. Explanation of the categories of this Sub-heading.—In the census terminology, animal husbandry has been called stock raising and classed as Subdivision 0.1 of the non-agricultural occupations. Similarly, the rearing of small animals and insects includes poultry farming, bee-keeping, lac culture, silk-worm rearing and similar other productive activities are included in Subdivision 0.2 of the non-agricultural occupations. From the point of view of employment and in actual practice we do not find any of them as specialised and independent occupations as assumed by the Census terminology except to a very limited extent. We rather find them as occupations subsidiary to farming. It is for this reason that even though the Census of 1951 returned only 18,538 persons as engaged in stock raising, the live-stock population of Bihar numbered 256 lakh farm animals (cows, bulls and bullocks, buffaloes both male and female, goats and sheep) by the separate live-stock census of the year, and

the pig population stood at 6.53 lakh. Similarly, the number of persons engaged in poultry farming, bee-keeping and silk-worm rearing was returned as 4,734 even though the number of poultry (cocks, hens, chicken, ducks, drakes and ducklings) by the live-stock census was over 82 lakh. It is for this reason that we have eonsidered all these economic activities as a part of the normal work of the farming families and have looked upon all of them from the point of view of reducing unemployment and under-employment of the farm population by intensifying the activities on the farms and thus inducting a flexibility in farm management and economy. This stand is justified not only from the employment point of view but also because our seasonal rainfall, high rate of evaporation and other climatic conditions do not create favourable conditions for cattle grazing and pasture farming which require very humid climatic conditions and continuous rainfall throughout the year. It is for this reason that we have considered a mixed arable-animal husbandry and stall-feeding on cut-fodder, fodder derived from crop-growing and on roots as more appropriate for our State both from the point of view of natural controls and of the employment situation. What is really needed is that our farmers should adopt the farming practices of the advanced European countries where the holdings are put partly under cereals and partly under roots and fodder grasses in rotation both for maintaining the fertility of the soil as well for feeding the farm live-stock.

- 63. Stock raising and daiying and specialised or mixed occupations.—We have, however, no objection to the efforts of the State to develop specialised stock-raising and dairying in view of the need of improving the supply of protective food. Further progress of the economy and increase in the level of national and per capita income would, as it has already started to do, change the structure of demand and create an increasing demand for more of animal products in the food of the people. I ence, the scheme of key villages and milk-pockets for the raising of dairying and draught animals and for developing dairying in selected localities is quite appropriate and has got an appreciable employment value. Apart from these milk pockets, pasture-farming is possible and is being practised to a limited extent in certain regions with appreciable moisture in the soil and atmosphere. There are certain areas along the foothills of the Himalayas in Champaran and Purnea, the area of the Kosi river, certain parts of the plateau region where pasture farming may be possible.
- 64. Comparative employment value of specialised and mixed animal husbandry may be examined.—For the reasons stated above, and arising out of our emphasis on animal husbandry as a method of farming intensification, we have not been able to give more attention to the calculation of the employment potentials of animal husbandry as a separate and specialised trade. We, therefore, consider it to be desirable that the proposed State Committee on Employment should study the subject of animal husbandry under both the systems of mixed farming and specialised occupation from the employment point of view, inter alia, along the lines suggested here. The projection of effective demand may be worked out by studying the dynamics of demand and finding out how and on what lines the consumer demand gets restructured at different levels of income. The agronomy of mixed cropping for growing fodder grasses and roots from the economic as well as from the soil nutrition point of view may be examined. The employment value of the two kinds of animal husbandry may also be examined. It should not be difficult to estimate the mandays intensity per animal under the two systems.
- 65. Sheep and goat rearing.—We have seen that goat rearing easily fits into the routine of the poorer farming families, specially if they have many children. Sheep rearing, however, is a specialised job since no suitable size of herd can be reared without pasturing. The employment value of sheep rearing should, therefore, be examined further after collecting the necessary data about the breed, availability of

pasturing facilities and other technical aspect of sheep rearing. According to the live-stock census of 1951, Bihar had 59.41 lakh goats and 10.49 lakh sheep. The importance of goat lies in the fact that it is almost the sole source of the supply of meat in Bihar and in India. Moreover, Bihar exports a large number of goats for meat purposes to the neighbouring States regularly.

66. Pig breeding and rearing.—The Committee has collected useful data on this subject all of which may not be utilised at present. The pig is a very valuable farm animal in Europe, America and China. In India, too, in certain regions and among some communities pig-rearing is a hereditary occupation of the poor. The livestock census of 1951 showed the hog population in Bihar to be 6.53 lakh. In Europe, on the other hand, it is a line closely integrated into small scale and medium scale farming, and the pig is a major constituent of the farm live-stock. Both breeding and fattening may be done by the farmer or there may be a separate trade in buying small pigs for fattening them for the slaughter house. One great advantage of the pig is that the rate of growth of the meat on the pig and the return in terms of the meat for the cost of the feed is higher than that for any other meat animal. For this reason and on account of the profitable employment provided, it is considered to be a very good line for intensive labour as well as investment by the farmer in Europe. The special reason for our emphasis on pig breeding is the fact that even though consumption in India may be limited, a good market for the meat exists and can be expanded in some South East Asian countries to pay for our imports of rice. Moreover, it is believed that there would be further employment in processing the meat on scientific lines. It may not be necessary or possible to introduce pig breeding or rearing on a very wide scale in Bihar. But it should be possible to foster it, improve the breed and organise the business for those who are the traditional pig keepers. Something is being done on these lines in the Santhal Parganas. These measures may be adopted for the economic rehabilitation of the landless families among them. It is not an appropriate policy to seek to find land for every landless family in view of the diversification of the economy which is called for.

67. SERICULTURE.

67.1. A countryside occupation.—Sericulture is clearly an activity for the countryside whether confined to the collection of cocoon from trees and shrubs or requiring regular indoor rearing of the worms. We have already seen that it does not appear to be a thoroughly specialised occupation. On the other hand, the work of providing mulberry and castor plant leaves, of feeding the worms, of cleaning the containuers and stands daily, of attending to the cocoons, and so on are so continous that sericulture cannot be taken up just as a casual side-line or hobby in the slack season and dropped in the busy agricultural season. Even the guarding of the tassar worms and the cocoons on trees on the outskirts of the village or of the jungle from crows and other predatory birds requres constant care by women and children. Though the tassar worms thrive on the leaves of al, arjun and asan and do not require being reared indoors, efforts to domesticate them have been made successfully. Moreover, the eri and mulberry varieties entail the cultivation of castor and mulberry plants for the large quantities of leaves consumed by the worms. Hence, the business can be taken up only in the rural areas. Taking all the facts into account we conclude that except for the culture of the tassar variety to some extent, sericulture tends to become a fairly specialised occupation but confined to the rural area. So it is integrated to the agricultural economy but it can only become an occupation subsidiary to farming where the women and children can take up the work. Or it has got to be the main occupation specially suitable for families with small holdings and for most of those classed as landless families.

- 67.2. Employment value of sericulture.—The occupation has ample scope for expansion and the employment potentials are appreciable in view of the fact that the demand of the silk weavers for yarns continues to remain unsatisfied. The silk industry has enjoyed tariff protection since 1934 and great strides have been made in the industry. Under the overall plans, direction and encouragement of the Central Silk Board, India as a whole has made good progress in the production and manufacture of silk. The Government of Bihar, too, have taken steps to increase the number of seed rearing centres of all the types of worms, for increasing the supply of feed for worms and for propagating the proper type of mulberry tree in order to improve the quality of the silk. Efforts have also been made for imparting training in rearing and in the reeling and spinning process. In spite of all these efforts and the progress made, it appears that Bihar, which claimed to be the second largest silk producing State in India in 1953 has lost ground to Kashmir, Mysore and Assam, as revealed before the Tariff Commission in 1958.
- 67.3. The necessity of improving the rearing practices of the small rearers.—We feel that this slow progress in Bihar is due to the fact that sericulture continues to be a side-line activity in the rural areas and it has not been possible to improve the rearing practices of the very large number of small rearers. We are of the view that further investigations are necessary to establish how the activity can be fitted into the farming programme of the average cultivators with large families as a side occupation and how it can be made into the main occupation of the small holders and of the landless families. Investigation is also necessary to find ways and means for the supply of feed for the worms if landless families are encouraged to take up the occupation. We have not been able to assess the employment value of this activity in all these different forms, and we wish that this assessment may also be made along with the investigations on the other points noted above.

68. FISHERY OR FISH-CULTURE AND FISHING.

- 68. The employment potentials of fishery are not brought out fully by the number returned as engaged in fishing in Subdivision 0.6 of non-agricultural occupations in the Census of 1951. The figure stood at 16,505 in that year and takes into account only the number engaged in fishing as a whole-time occupation. We shall presently see that just as forestry does not simply mean exploitation of the forest wealth, fishing is only one occupational aspect of fishery. We shall see that in most parts of Bihar, fish culture may be made into an important subsidiary occupation integrated to farming and land utilisation.
- 68.1. Production of fish in Bihar.—It was estimated in 1945 that the production of fish in Bihar was about 10 lakh maunds, of which 5 lakh maunds was exported to other States. Thus even before the separation of East Pakistan, Bihar was the second largest producer of fresh water fish. It is possible that the actual harvest of fish stands at a higher figure if we take into account all the fish from shallow water, marooned fish as the water in the rivers begin to recede when the rainy season is over, the mud fish and fish in the confined waters of tanks caught and consumed locally. What is exported consists mostly of the larger varieties caught in the rivers. Even this figure does not take into account the potentials of production if regular fish-culture is developed and added to the more occupation of fish harvesting.
- 68.2. Employment potentials of fishery.—The employment potentials of fishing and fish-culture can be brought out clearly if we remember that the mere harvesting of fish provides only a fraction of the total volume of employment which is possible by systematic fish-culture. Our statistics do not classify the area under water separately as is found in the statistical accounts of West Bengal. But it has been estimated that the total area of land under water perennially is 3 lakh acres while the area

under deep water paddy cultivation is 5 lakh acres. The latter retains water throughout the rainy season and upto December so that it is possible to adopt fish-cumpaddy culture in this area. We have not been able to get figures separately for the area of tanks, of jheels, of river beds permanently under water and of the area inundated additionally during the rains. The last one is of importance because most varieties of fish migrate up stream for spawning, and large quantities of marooned fish are caught as the water recedes. We have also to note that the dams and reservoirs of the Damodar Valley Corporation have added considerably to the area under water and the Corporation has for the first time started systematic fish-culture on a large scale.

- 68.3. Productivity of land under fish-culture.—With this appreciable area under water suitable for fish-culture, it is also noteworthy that systematic fish-culture can be as productive as any other land use. It has been calculated by fishery experts that the yield of fish per acre in the areas of jheels, rivers and other unconfined waters ranges from 5 to 10 maunds annually, the yield from confined waters in tanks may range from 10 to 15 maunds. In certain cases of well prepared and intensively manured tanks even an yield of 40 maunds has been claimed. In any case, even a much discounted figure can compare very favourably in maundage, and even more in food value and money value, with the average yield of a little over 6 maunds of foodgrains per acre.
- 68.4. Employment value of fishery examined further.—From the employment point of view, we have to draw a clear distinction between mere fish harvesting, as is being done so far, and regular fish-culture. The latter has not made much progress so far. It is clear that the scope for employment is limited in fish harvesting or the catching of fish from rivers, jheels and tanks. If fish-culture is introduced as a regular business there would be additional employment for a very much larger number of persons, we may examine fish-culture as a source of employment, from two points: firstly, as a subsidiary occupation for the farmers owning tanks; and secondly as a specialised enterprise. If the farmers owning tanks in their holdings take up regular fish rearing by properly stocking them, regularly undertaking the care of the tanks and their manuring, these operations should provide employment for them as well as for the fisher folk. Moreover, increased production would provide further employment in netting, transportation and retailing of fish.

As a result of the Land Reforms in Bihar, most of the tanks and jheels in the zamindari estates in which tenancy or bakath rights had not been created, came over to the State. But the Revenue Department Officials are so busy with their other responsibilities that the tanks are not being looked after even to the extent to which they were taken care of by the Zamindars or their agents. Not only no efforts have been made to exploit them systematically for fish-culture, as was expected, but even the proceeds of the fish harvesting leases are reported to have fallen very much below the amounts which the Zamindars were able to realise.

The Committee have considered the question of scientific and planned utilisation of the water resources of the State for fish-culture with a view to increase employment and food supply and they are making the following recommendations:—

- (1) The State Government may modify the present system of management of tanks and *jheels* in such a way as may lead to increase both of revenue and employment.
- (2) They may consider, whether the Department of Fishery may take over such Government tanks and *jheels* as they can manage as a profit-making enterprise on business lines.

(3) while the overall management and control of the enterprise by the District Fishery authority would be necessary for technical direction and supervision, it may be considered whether on-the-spot management and working may be entrusted to village panchayats where they exist, or to co-operatives of fishermen where they may be organised. The sub-leasing of particular tanks to individuals for the sake of intensive individual care may also be considered.

69. BEE-REEPING.

- 69.1. General Remarks.—We have still been thinking of bee-keeping as a hobby. But it may be a profitable business for easy integration into the usual farming routine as it does not tend to develop into the whole-time and serious occupation which silk rearing does. But serious efforts should be made to interest about four to six persons in each village according to its size to take it up. Any general propaganda may not succeed. With our tropical vegetation and the availability of the flowers of trees, plants and shrubs for the nectar collected by the bees, bee-keeping should be very successful in Bihar. Another social service of bee-keeping deserves mention because it is not generally emphasised. One of the factors determining the outturn of a crop is the extent to which the flowers are pollinated. This is the function of wind and of insects. It is for this reason that every orehard in Europe has got its necessary complement of bee-hives. In the U.S.A., hive-keepers are hired by farmers to move to their farms with the hives for achieving a higher level of pollination so as to secure higher outturns for even cereals and vegetables. It is claimed that the presence of hives accounts for a clear percentage increase in the outturn of crops. We recommend that the Government may experiment on this factor for increasing food production and the Government farms should also be encouraged to maintain bee-hives.
- 69.2. Bee-keeping in the list of the approved industries of the Khadi and Village Industries Commission.—Bee-keeping was adopted for the patronage of the Khadi and Village Industries Board during the First Five-Year Plan period. Yet it has made very good progress in India as a whole. The scheme includes encouragement to collection of wild honey, setting up of apiaries as well as nurseries for multiplying the hives for sale and facilities for the supply of hives and appliances at subsidised rates. A well-knit hierarchic organisation for developing the industry has been set up and there is good provision for training educated persons to take it up as a small enterprise.

We have already noted that there is very good scope for all the activities listed in the programme in this State.

of poultry keeping.—This Committee is not concerned with the technical aspects of poultry keeping. Investigations and enquiries show that poultry keeping can be very easily integrated into the routine of the farmers if carried on on a small scale. So far it is confined to certain castes and communities and the Department of Agriculture has been making available birds and eggs of the selected types suitable for egg-laying or table purpose to the rearers. From employment point of view, the collection of certain data, which could not be done, is necessary and it is recommended that this may be taken up. It has been found that beyond a certain size of the flock, the work tends to become a whole-time job. It also becomes necessary to have a fenced-in chicken run, and a water-pond, if there are ducks, too. All this is necessary because the birds commit serious depredations after sowing by eating up the seeds sown in the fields and also by destroying the young and tender plants as they come out of the soil. There is, then the question of calculating the recurring cost of poultry rearing on a larger scale if the food for larger flocks has got to be purchased

because the birds cannot simply live on picking their grub by being let loose. Finally there is the question of serious epidemics afflicting the flock of chicken and of the business risk involved thereby. It is reported that effective vaccines and sera are available, but they are not known widely as yet.

For all these reasons, further investigations are necessary on these points. The calculation of demand and of the potentials of employment would not be difficult to make.

71. Lac Culture.—Investigations have shown that the cultivation of lac, wherever the host trees can thrive, can be easily fitted into the normal routine of the average farmer. The main question is that it has got to be introduced in each locality on such a scale that it would provide sufficient employments for a skilled unit for the collection and marketing of the harvest. There are great fluctuations in the price of lac, but the large number of small cultivators are not worried by it. The Forest Department of Bihar has been concentrating on the production of brood lac for distribution among the villages where the nost trees like Kusum and Palas grow. During the Second Five-Year Plan, twenty brood lac farms are being established and another twenty would be added in the succeeding plan period.

E.—THE EXTRACTIVE INDUSTRIES.

- 72. Main features of the Extractive Industries.—The resources exploited by the extractive industries represent wasting assets which do not regenerate like the resources of agriculture, forestry and fishery. These resources, subjected to extractive industries, are mainly found underground though some of them may be available on the surface like saltpotre and salt. There are various schemes of classifying these resources. These need not detain us as the point of view from which we consider them is different. Many of these metallic and non-metallic minerals are of very strategic importance in industry even though their direct employment value of the mining operations is almost negligible. It may also be noted that we are considering in this chapter only the employment generated directly in the mining operations. The employment generated by them indirectly in transport and processing would naturally fall under other heads.
- 73. The mineral wealth of Bihar.—The State of Bihar is the leading State of India with regard to the deposits and production of the most important minerals found in the country. They consist of coal, iron-ore, manganese and lime-stone. So far the Singhbhum mines are the only source of copper. Bauxite of high quality is being mined in the Ranchi district. One-fifth of the chromite mined in India comes from Bihar. The State produces good quality of China clay and fire clay. Over 85 per cent of the Kyanite and 60 per cent of the mica produced in India come from Bihar, and the Kyanite deposits of Singhbhum are the largest in the world.
- 74. Employmen in Coal Mining.—The census of 1951 gave the number of coal miners as 1,10,713 men and 24,402 women, or a total of 1,35,115 miners. The figure given in the departmental statistics which would be more reliable, is 190 thousand for Bihar in 1951.

Figures available for the years up to 1956 show that those engaged in mining in Bihar constitute over 50 per cent of the coal miners in India. This percentage, however, has shown a steady fall from year to year since 1951. It was slightly less than 54 per cent in 1951 and stood at 50.31 per cent in 1956. This is not surprising in view of the forced developments of coal mining in the other parts of India under the scheme of rapid development of thermal power and other metallurgical, chemical and engineering industries and the special attention devoted to regional balancing. Great

developments are being registered in Orissa, Madhya Pradesh and Andhra Pradesh. Thirdly, the production of coal has been increasing from year to year in India from 34.43 million tons in 1951 to 39.28 million tons in 1956, and the target of Second Five-Year Plan is to increase it to 60 million tons. The production in Bihar, too, went up from 18.58 million tons in 1951, to 19.60 million tons in 1956 and further steady expansion is inevitable. The next feature is that in spite of the increase in production, the absolute figure of employment in coal mining has shown an almost steady fall from 190 thousand in 1951 to 177 thousand in 1958. The Committee however, does not feel alarmed over this feature and is prepared for a further fall or at least no great increase in the number of coal miners, for reasons explained here. The fact is that it would be impossible to increase the output from the coal mines according to the targets of the present and the coming plants with the traditional methods of cutting and raising or hauling coal. Only the use of explosives to loosen coal and the use of mechanical cutters, shovels and hauling equipment can enable us to attain the target of output of 100 million tons by 1965 or even of 60 million tons by 1961. The Second reason for our being reconciled to this trend of stagnation or even a fall in the number of miners employed is that the cost of raising coal affects the entire economy. If the cost of production can be kept down by increasing the output per miner, it would mean a lower cost structure for thermal power, iron and steel, heavy chemicals, railway transportation as well as all other producer and consumer goods. Thirdly, mechanisation in coal mining would take away much hard and strenuous exertion and also increase the wage rate of the miners. Fourthly, mechanisation would create avenues for better paid skilled jobs in place of the hard manual and muscular labour. Fifthly, when we take into account the more up-to-date methods of treating coal in the washeries and consider other activities connected with the processing of coal, we shall find that the reduction in the number of jobs in mining is more than made up by the net increase in employment in the industries processing and utilising coal. A word of caution, however, is necessary. The Department of Labour and Employment has got to be alert to watch that while the avenue of the traditional employment of the manual workers in Bihar becomes restricted, the people of the State get their due share in the increasing number of the more skilled as well as better paid jobs created by mechanisation, coal washeries, and the processing of coal to avoid increase in unemployment. During the last few years, from the First Five-Year Plan itself, and specially after the establishment of the National Coal Development Corporation of India with its headquarters at Ranchi, vigorous efforts are being made to train the large number of managers, engineers and technicians right down to sirdars in a number of special institutions. The Central Government should be requested to issue instructions to the recruiting authorities to give due consideration to the claims of the people of the State in the industries located in this State.

75. Employment in iron ore mining.—As is fully known, the iron ore mines of Bihar are rich in high grade ore. But, as in the case of coal mining, iron ore mining also shows a steady trend of rising annual output and steadily falling employment in the mining operations after 1953. The number of miners in Bihar which 10.6 thousand in 1951 rose to 15.88 thousand in 1953, and has been falling steadily since then. Here also this trend is due to mechanisation which is necessary for increasing the supply of ore and for keeping down the cost of production of iron and steel for the benefit of the entire economy.

76. Employment in manganese ore mining.—Bihar contributes only about 4 per cent of this vitally necessary metal required for steel, aluminium and other industries. The number of miners employed has fluctuated about to 1,000. We do not know whether mechanisation is economically possible if the mining operations are carried on on a small scale.

- 77. Unemployment in copper ore mining.—Until such time that workable copper mines are found elsewhere, Bihar will continue to be the sole-contributor of copper in India. The number of miners has reached the figure of over 4,000, and there is little likelihood of mechanisation in copper ore mining. Copper is one of the vitally necessary metals for industrial growth and the indigenous supply is so limited that the Government of India are making strenuous efforts to search other deposits. Hence, at least a steady employment can be counted upon.
- 78. Employment in bauxite mining.—Bauxite is the ore from which alumina is produced by a mechanical process before this alumina is reduced to virgin aluminium by electrolytic process. Bihar has been pioneer in the mining of bauxite and in the manufacture of alumina. The ore of Bihar mined in the Ranchi district is of a very high quality. Aluminium is tending to become a versatile metal on account of the different uses of the metal, as it is, as well as an alloy material and a substitute for other metals. The scarcity of alloy metals like copper, nickel, tin, etc., has made the country anxious to use aluminium as a substitute for many of these scarce metals. Hence, we expect a steadily mounting demand for and production of aluminium and an expansion of employment in bauxite mining in spite of developments elsewhere in India. The total number of persons employed in mining, however, is less than 500.
- 79. Other minor minera's—There are a few other minerals which mined in Bihar and are of great importance industrially, though their separate or combined employment value is rather small. Kyanite, which is so highly valued for refractory purposes, is one of them and the largest deposit of this mineral is in a belt which starts from Kharsawan in Singhbhum. The mining operations employ about 2,500 people. The number of miners engaged in the mining of chromite ore has fluctuated between 762 in 1952 and 185 in 1955. Employment in steatite mining has increased from 251 in 1952 to 625 in 1956. Tin ore mining barely employs a dozen or so. Employment in graphite mining had increased steadily from 3 in 1953 to 213 in 1956. Asbestos is another important mineral, very important by itself, but employing a fluctuating number between 200 and 350. Employment in apatite mining is small and ranges between 100 and 250 though it is a valuable mineral for the manufacture of phosphatic fertiliser which is so necessary for our soil.
- 80. Minerals for ceramic, glass and refractory Industries.—Bihar produces about 48 per cent of the china clay of India and employs about 2,600 miners. Fireclay extraction employs about 300 and whiteclay about 800 persons. But the employment value does not show the importance and place of these minerals in the present industrial structure or the future build-up of our economy.
- 81. Building materials, road metals and other stones.—The mining of lime-stone is important both industrially as well as from the employment point of view. Employment has fluctuated round about 7,000 persons. The future trend is not very clear in view of the fairly generous occurrence of lime-stone in other states. Extraction of stone from igneous rock as a road metal and for structural foundations is very important and employment in the industry has increased from about 2,000 to 4,000 as a result of large constructional works and road developments.
- 82. Mica mining and its high employment value.—In the employment economy of Bihar, mica is the most important mineral next to coal. Unfortunately, the mica industry and trade are so much at the mercy of foreign markets that the fluctuations in demand and price disturb a trend of steady employment and produce acute and recurring hardships among the miners. Employment in mica mining stood at 27,396 in 1951, and gradually fell to 10,102 in 1954 but again reached the figure of 19,336 in 1956. There is such an ample volume of literature on mica mining industry and trade that

we do not propose to go into any details here. The industrial aspects have been considered in the chapter on the Secondary or Industrial Sector. It remains to be mentioned here that if the industrial processing of mica, and consequently the demand for raw mica can be put on a sound footing, the mining business should be able to provide a steady level of employment. This conclusion is drawn from the fact that the geological character of the mica-bearing formations would preclude the possibility of any large mechanisation of mica mining. We, therefore, recommend that the Centre and the State Government should introduce measures so that stable conditions may be created in mica industry for stabilisation of prices and employment.

83. Water.—It is quite logical that we consider water under the Primary or Basic Industries as one of the important raw materials of the economy as it has been treated by Brown and Dey in the book "India's Mineral Wealth". Water, however, is both a producer and a consumer commodity like coal or wood. It is the very basis of all life. All important industries require such large quantities of water that a locality with all other raw materials may fail to establish an industry unless a regular supply of sufficient quantity of water is available. Hence, the husbanding of the water resources, whether surface, sub-soil or subterranean is of basic importance not only for agriculture and urban life but also for industries. All the important branches of science and technology, geography, geology, chemistry, meteorology, engineering, mechanics, etc. have to contribute to the solutions of the problems of water supplies in all their various aspects. Water supply, therefore, is a complex subject and the employment aspect may not be easily examined at one place. It is, therefore, the practice to consider it under different heads in relation to agriculture, flood control, river training, irrigation, hydel-works, river-valley projects, industrial overheads, inland navigation, urbanisation, public health, etc.

84. General conclusions about the employment aspects of mining and quarrying.—The analysis and statistics of the mining industries have got to be interpreted in the broad terms of employment. Taking the labour market as a whole, the absolute number of persons employed in the various mining and quarrying industries is not very large and comes to round about 2.3 or 2.4 lakh in a total non-agricultural economically active population which might be about 20 lakh at present. Nor is there much likelihood of any great increase in the absolute number of the persons engaged in the extractive industries. These industries, however, form the base or the foundations on which the major part of the superstructure of the processing and manufacturing industries are built up, tier upon tier. They further create the need for building up the overheads of the transport systems of all kinds. It is noteworthy that even in the absolute volume or in the percentage of all industrial activities in the Secondary Sector, the share in value of the products as well as the employment value of the mineral based industries is greater than that of the agriculture based industries, though the latter begin to become important in the Tertiary Sector.



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APPENDICES TO CHAPTER IX.

APPENDIX NO. 1.

Fish-cum-paddy Culture.

We consider this line to be eminently suitable for being integrated into the normal farming routine. It would be specially suitable for holdings consisting mainly of deep water paddy fields and with only a limited area of elevated land. The work involved would not be much, but it would necessitate the putting up of solid embankments round the plot to hold back water unless it is a natural depression, jheel or filled up tank. The construction of embankment would be easier in the plateau regions where paddy fields may consist of excavated plots or of slightly sloping land embanked on one side only. This device would not be possible in very soft clay soil. It has been already noted that the Fishery Department estimates the area of land suitable for deep-water-paddy, and so for fish-cum-paddy culture, in Bihar at 5 lakh acres. It has been demonstrated that the simultaneous culture of fish also increases the yield of paddy on account of the manurial value of fish droppings and the constant stirring of water by the movement of the fishes. It has been further ascertained that the little additional labour required for looking after the fish culture can be easily fitted into the normal pattern of the farm work.

APPENDIX NO. 2.

Buffer Crops.

The term buffer crop has been used with a number of meanings covering a variety of crops and a number of arguments for their inclusion in the cropping scheme. Sometimes a minor crop is mixed with a major one as an insurance against the unpredictable conditions of climate, rainfall, flood or drought. Thus in certain belts liable to inundation in some year, and normal or deficient rainfall in another, seeds of paddy, arhar, maize, seasamum and urd are sown in a mixture. As distinguished from this practice, the inclusion of a subsidiary crop may be for the purpose of fodder, or because one of the mixed crops is growing up slowly and the other one is a quick growing one which can be harvested earlier like munj from paddy fields. Sometimes a paying but exhausting crop may be mixed with one which contributes towards a replenishment of the fertility of the soil, and thus acts as a buffer in this sense.

There may be quite a distinct objective and method of buffer cropping when the cultivation of a crop is inducted to fill some gap in the time-table of cultivation. We have seen that the density of cropping is one of the main methods of intensive farming. From this point of view we come across so many levels of intensiveness, ranging from single cropping to continuous cropping, that serious agronomic research into the value of different buffer and minor crops, whether cereals, roots or fodder, from the points of view of adjustments in the time-table of cultivation, of the effects on fertility and of the objective of reducing under-employment, is very desirable. It is desirable that both the direct and the indirect effects on the intensity of employment are taken into account. For example, a buffer crop may by itself be less labour intensive, but it may provide valuable feed and fodder to enable a higher intensity of farming by making it easier to increase the size of the farm live-stock. The cultivation of sweet potato is an example.

Investigations and further research in the cultivation of hot weather crops and further adaptation of other seasonal crops to hot weather farming conditions are also called for. This is all the more necessary in view of the increasing use of wells and

other minor irrigation works. Moreover, the emphasis of the Department of Animal Husbandry and better nutrition of the farm animals require that the draught animals, too, are not under-employed and earn the higher cost of their maintenance. The use of Rahat irrigation would be a method of remedying under-employment of bullocks.

The Committee has not got much data on the subject of this Appendix, and it is recommended that further research and study by agronomists and agricultural economists in this wide and complex subject for reducing under-employment be taken up. So far, the major responsibility for solving the problem of seasonal unemployment in agriculture has been left to cottage and house industries. It is desirable that the agronomists too share in the responsibility for finding the ways out.

APPENDIX NO. 3.

Jute Cultivation.

The cultivation of jute is being considered here as a buffer crop because even though the superior Muniyasi variety is a major crop by itself for the farmer who lay emphasis on jute as the main crop, the Jaliyasi variety may be grown as supplementary to paddy since it can be harvested before the transplantation of paddy in the same field. Even Muniyasi can be grown in succession to such Rabi crops as can be harvested in time to allow the fields to be ploughed and prepared for its timely sowing in February to March. The Muniyasi crop is harvested in July and August. The Jaliyasi variety can be grown in the paddy fields which may be ploughed from January to March. The crop is harvested in September to October. Thus it would be seen that only by very prompt operations and an appropriate selection of the type of the Rabi crop and of the succeeding paddy crop that the double cropping would be possible. It is reported that the Jaliyasi variety tends to enrich the field for the succeeding paddy crop instead of encroaching on its fertility. The Muniyasi variety, however, requires heavy manuring.

In every case, jute growing is fairly labour intensive, whether cultivated as a major or as a buffer crop, as would appear from the following description. The preparation of land requires 6 to 7 ploughings at the rate of 3 ploughs to an acre. Hence per acre it requires 18 to 21 plough-days for ploughing and bedding, and 2 plough-days for sowing. The Jaliyasi variety may require only 4 to 5 ploughings, and so only 12 to 15 plough-days for preparation. Its cultivation does not require any irrigation, but at least 3 weedings are necessary. The first weeding entails 30 man-days, the second one 20 man-days and the final one may be managed with only 10 man-days per acre. Next, reaping, deleafing after slight drying, carrying to the retting pond and steeping have been calculated to require at least 30 man-days per acre. Finally, the processes of taking them out, extracting the fibres, drying and bundling generally require 32 to 35 man-days per acre.

Jute also provides very profitable employment to those farmers who maintain bullock-carts for transporting the commodity to the rail-heads. A special reference has been made to jute because there are many areas in which the *Jaliyasi* variety can be introduced where it is not grown as yet. Thus it would provide additional employment without encroaching upon the acreage of the food crops.

APPENDIX NO. 4.

Tobacco Cultivation.

The preparation of the land itself for tobacco requires very intensive operations and heavy manuring. The rearing of seedlings is a specialised job, and cultivators

generally buy them from specialists. Next, the work of cultivation, right from the day of planting upto harvesting is highly labour-intensive. Each plant requires skilled individual care and attention, and each plant has got to be inspected almost every day. Even a plot of less than an acre under tobacco can keep the entire family engaged. Generally cultivators combine the growing of tobacco on a mere fraction of an acre with cereal growing because it is a very delicate plant liable to be ruined by excessive heat or hail-storm or certain diseases. The curing of tobacco leaf, and even the preliminary cutting and handling, is considered to be such a specialised job that most cultivators sell the standing crop to a special class of people who undertake harvesting and curing. Tobacco cultivation is thus an ideal line for a hard working family with a dwarf holding of the suitable type of *Bhith* land. On the holdings of the bigger cultivators, tobacco cultivation increases the number of mandays for which there is a demand for wage earners.

APPENDIX NO. 5.

Potato.

Bihar has got many special advantages for growing potato. It can be grown in every district of the State. The usual system is to sow and harvest two successive crops in the cold weather. Under special conditions, even a rainy season crop of early potato is harvested by October. In recent years, cultivation of rainy season potato has spread over an appreciable belt of the Ranchi district and the harvest comes on the market just when the supply of the main cold weather crop is deteriorating and being exhausted so that the price has reached the highest level. The Committee conducted a special investigation on the employment potentials of potato growing and the following points are summarised from the data collected:—

- (1) The present production and consumption is only a fraction of the quantity of root vegetables required in a healthy dietary according to the nutritional norm. Moreover, Bihar exports large quantities of potato for both consumption and seed purposes to other states. With every increase in the income per capita and of the population, the demand for potato would increase. Hence, there is no apprehension of any over-production if the acreage is increased.
- (2) At present the area under potato fluctuates round about one lakh acres. This acreage can be easily increased many times over without in any way impinging on the acreage of outturn of the cereals. The cultivation of potato (as also of tobacco) requires such heavy manuring that the succeeding Bhadai crop, which may be raised on the same plot, yields a far higher outturn than the average of the crop. This is because of the intensive treatment which the soil has undergone, and because the manures applied for potato are not exhausted by that crop and their effects are relayed for the succeeding crop.
- (3) The employment value of introducing potato cultivation more widely in the cropping schemes would be clear when we assess its labour intensiveness. Potato growing requires very intensive preparation of the soil by successive ploughing, weeding and manuring. The crop requires repeated watering according to the nature of the soil, generally once a week, and further weeding and ridging or earthing of the root system of the plant at least twice. It has been estimated that each acre of land under potato calls for about seventy man-days for each crop or for about one hundred and thirty man-days for double cropping.

- (4) The growth in the number of cold storage establishments is expected to stimelate still further the cultivation of potato and would also create additional employment for educated persons, bullock-cart owners and middlemen.
- (5) The Committee, therefore, recommends that
 - (a) in view of the very great scope for expanding the acreage under potato, the construction of more cold storages, widely scattered over the State, by private enterprise and by the co-operatives be encouraged;
 - (b) it is further recommended that systematic measures be taken by the Government to spread the cultivation of rainy season potato in the plateau area; and
 - (c) it is also recommended that the supply of seeds of the right quality and in sufficient quantity be arranged through private and co-operative agencies and that the selection and storage of seed potato already receiving attention of the Government be continued on the scale required.

APPENDIX NO. 6.

Onion.

The special significance of employment in onion cultivation lies in the fact that it fits within the period of the slack season after paddy has been harvested and thrashed, and the Rabi crops have already been sown. Secondly, onion can be grown both on the light Bhith land as well as on the stiff clay soil softened by irrigation. Again, the intensiveness of the cultivation can be adjusted to the resources of the cultivator. It is a fairly hardy crop and does not involve much after-care except irrigation and weeding. Nor does marketing present much difficulty. And the storing of the crop does create additional work, specially for the women.

The size of the demand in Bihar for onion is shown by the fact that large quantities are imported from south India in Bihar. Originally they were imported after the onset of the rains when the locally grown onion began to deteriorate by vegetative growth and to lose the taste. By now, large quantities are being imported throughout the year.

It is, therefore, recommended that

- (a) a research into whether the vegetative deterioration can be arrested, be taken up; and
- (b) it is further recommended that research into the possibility of evolving or acclimatizing some strain which may be grown as a dry weather crop or during the rains like the potato in the plateau regions of Bihar be taken up.

APPENDIX NO. 7.

Palwal or Parora.

It is one of staple and easily transportable vegetables grown in Bihar and is exported to distant markets all over northern India. The soil of Bihar is eminently suitable for it. The vine requires well drained light soil. It is trown without any hard

labour in the Diara areas but requires fairly intensive labour in the other areas of the State. Very good and tender quality of Palwal has been grown in Chotanagpur in some gardens. But the cultivation of this variety has not become very common. In North Bihar the usual variety is being cultivated even on a fairly large scale by the large and medium farmers. The operations involved in the cultivation are not strenuous, but it provides sufficient employment in weeding and constant inter-cultivation during the otherwise slack season. Moreover, employment for a large number of Turaha and Kujra men, and specially women, who buy the crop direct from the farmers and relieve them of the anxiety and work of marketing, is provided by it. The cultivation of palwal increases the density of cropping, too, because generally other crops can be grown on the same land even though the more specialised growers do not do so. The vines can last for a number of years after planting.

APPENDIX NO. 8.

Chilli.

Chilli is grown both in small plots along with other vegetables to be consumed or sold green as well as a cash crop in form of ripe dried stuff. The remarks here relate to the latter line. Chilli is one of the commodities subject to wild price fluctuations. Yet it is a crop very much in favour with the farmers in the localities where it is grown as a major cash crop. It is highly selective with regard to the soil in which it grows. The main intensity of labour relates to the preparation and manuring of the soil and to the care devoted after harvesting. It requires a very well-drained, and at the same time rich soil so that maintenance of the fertility of the soil requires considerable labour. In many localities there is the practice of carting the rich soil of the low paddy fields in large quantities and ploughing it into the clevated chilli fields. The cultivation of chilli is a valuable line for increasing both the density of cropping in certain limited cases and for increasing employment in general.

APPENDIX NO. 9.

Chewing Sugarcane.

Chewing sugarcane is a horticultural produce requiring individual attention to each single plant. The soil has got to be pre ared with the same care and intensive labour with which the fields are prepared for tobacco, potato or chilli. In the suburbs of certain towns and cities in other states, its cultivation provides profitable employment on dwarf holdings in the preparation of the soil, irrigation and individual attention to the plants. It also provides subsidiary employment in the urban areas to those who crush the cane with a hand machine and sell the nutritious sweet juice.

No systematic cultivation of this cane is being carried on in any suburban area in Bihar except at one or two places. It is also seen that no attention has been devoted to propagating, popularising or even preserving some of the fine varieties of chewing cane from extinction. Many fine varieties which adorned the gardens two or three decades back or were cultivated as hobbies, have completely disappeared.

Considering the employment value as well as food value of this variety of cane, we recommend that Government may secure suitable varieties of soft, juicy and sweet chewing cane from other states and outside India and propagate them. It is not considered so very necessary to undertake any prolonged and costly breeding operations. The fact is that most of the fine chewing varieties have disappeared by sheer neglect owing to our preoccupation with the milling canes.

APPENDIX NO. 10.

Sweet Potato.

We consider it to be one of the most useful multipurpose quick-growing crop in our agricultural economy. Its value in meeting the acute scarcity conditions verging on a famine more than once in recent years may be recalled. It is valuable both as food for the poor and as a nutritive feed for the farm animals. The creepers, too, are valuable cattle feed, whether green or dried. The yield per acre is very high and its cultivation improves the soil and frees it from weeds for the succeeding crops.

The people of India are so poor that all the sweet potato which is produced is consumed as human food. It remains to popularise its cultivation as a cattle feed also. It can be grown twice or thrice in a year and each crop can be sandwitched between other crops, thus increasing the density of cultivation without impairing the fertility.

Further investigations into the possible timings of its cultivation and the calculation of the employment potentials and rotational arrangement with the other crops may be taken up with a view to popularise its cultivation.

APPENDIX NO. 11.

Turmeric and other condiments.

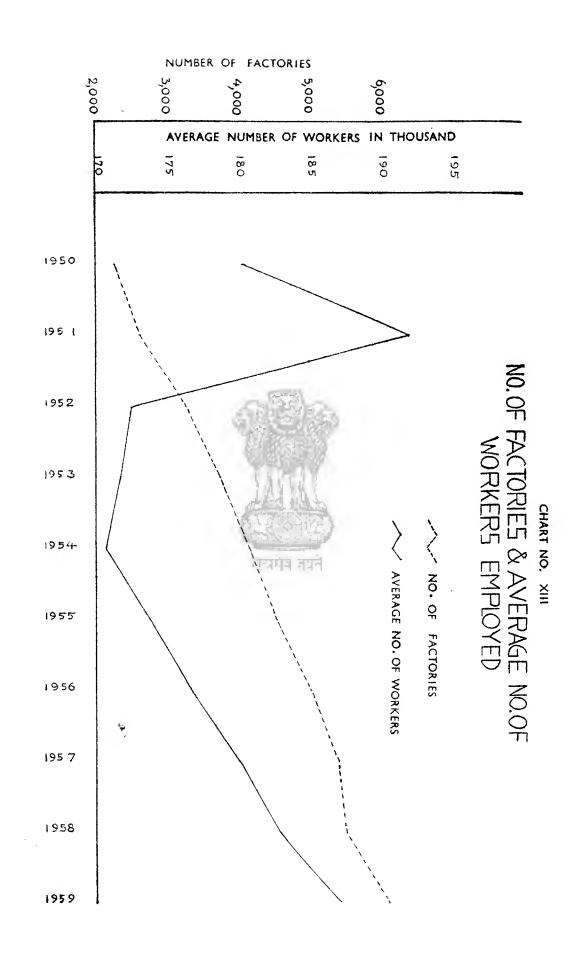
The value of these rhizome condiments lies in the fact that they provide added employment not only for the man but also for those areas in the shade of trees of a farm which are not otherwise suitable for any crop. The commodities command a good market. They provide employment for men and children not only for preparing the land, in weeding and in harvesting, but also for the women in deleafing, boiling and drying of turmeric and in storing ginger. The leaves provide useful material for composting while composting for the crops itself provides employment in collecting leaves of other trees and in rotting them. Their cultivation does not interfere with the routine of farming in any way and they are par excellence profitable employment-creating lines.

APPENDIX NO. 12.

Betel vine.

The cultivation of betel vine is such a highly specialised line and such a special type of land is required for it that it does not enter into the scheme of cultivation of the average farmer. But it has got its own importance from the employment point of view for the small holdings. We have still got to calculate the labour intensity involved, but a rough idea may be formed from the facts enumerated below.

- (1) The raised sloping and well-drained fields, which alone are suitable for the cultivation, require constant attention to prevent erosion.
- (2) The vines require special kinds of manure and a special method of manuring each plant separately.
- (3) The entire field has got to be studded with certain trainable trees whose roots must not be very exhausting for the soil. These trees are used for supporting the thatching.
- (4) The entire field has got to be canopied over with thin straw thatching to allow good air circulation and at the same time to protect the vine from the vertical rays of the sun and from the oblique afternoon rays.



The hereditary growers constitute a caste and they alone are adepts in the cultivation and handling of the leaf. We have not been able to get any estimate of the number of persons engaged in this occupation, but we know that it is quite appreciable. From the employment point of view, we have also to note that the curing and maturing of the leaf is itself a skilled job, and an art practised by another set of people. In addition, we have the large number of people earning their livelihood by running betel shops everywhere. Finally, there are the wholesale traders and retail suppliers of the leaf to the betel shops. Bihar has got a flourishing trade in exporting betel leaf outside the State. And there appears to be some import, as well, side by side. The leaf from Bihar is rated quite high in the markets of U.P. and further west for the purpose of maturing. Considering all these facts, it is desirable that Government devote some attention to this industry. This remark is called for on account of a recent report from Gaya, one of the important betel leaf growing districts, about the spread of some plant disease on account of which the vines have been drying. We recommend that the Department of requested to examine this report about the disease and list betel leaf as one of the crops requiring attention and research for improvement. It is gathered that there is a very large and regular traffic in betel leaf sent from South India to the northern states and Delhi. This shows that there is considerable scope for improving the quality of the leaf grown in Bihar as also for increasing the area under the crop.

APPENDIX NO. 13.

Bamboo: Its Casual and Commercial Cultivation.

Bamboo calls for attention for a number of reasons. It is the indispensable material for building and diverse other uses in the rural economy. Secondly, every holding normally consists of all sizes and qualities of land, and some of them would be more suitable for planting bamboo than for any other purpose. Thirdly, there are areas in the plateau region where it can be taken up for commercial cultivation on plantations.

The demand for bamboo has been increasing and would increase so enormously in future that there is a fear that the progress and proper working of certain industries may be seriously interfered with on account of the supply of bamboo lagging behind the growing demand. To the traditional demand for bamboo in the village economy and for basketry has been added the demands on huge scales for the manufacture of pulp, paper, man-made fibres and for the match industry. Under instruction from the Planning Commission, the Forest Department of Bihar has been putting 10 per cent of the area of annual afforestation under bamboo and 5 per cent under sabai grass in order to forestal this difficulty.

Bamboo cultivation is not being advocated as a cure for under-employment but rather for the purpose of creating additional employment in the pleateau regions where land for the purpose is available, and which can be utilised best for this purpose with the added value for preventing soil erosion. In the plain areas, the farmers may put odd plots of otherwise unusable land under bamboo because it is required for various farm and domestic purposes and the surplus would always find a ready market. As the production of many kinds of fruits and vegetables produced for the market increases, large quantities of basketry would be required everywhere for their transportation.

We have no information about the system in Bihar, but it is known that in other states, large areas of land have been leased to paper mills for the cultivation of bamboo because it is considered that the efforts of the Forest Departments by themselves would not be able to meet the threat of bamboo famine. We, however,

recommend that for the purpose of expanding the field for employment, the possibility of small individual entrepreneurs with farming experience and moderate capital resources taking to bamboo plantation may be examined. It may attract educated youngmen to take it up and combine it with modest general farming in the plateau. We further recommend that the implications of this recommendation be first examined because the business would involve the investment of some initial capital and the resultant income would begin to accrue only after a time lag. It would also be desirable to develop the cultivation in a planned manner so that the individual plantations are so located as to enable the means of transport and the marketing facilities to be provided. The question of adequate loans for the purpose has also got to be considered. Any subsidies as outright gifts may not be necessary, but the State should provide appropriate facilities for the enterprise.

We do not, however, think that the development of bamboo cultivation should be held up if small planters are not forthcoming. The subject has been also considered in the Sub-Chapter on sylviculture. We expect that this industry would create employment both for educated people and small capitalists as well as for a large number of manual workers in cultivation and transportation.

APPENDIX No. 14.

Fibrous, Cellulose and Tanning Materials.

There are many activities connected with the production and regular collection of fibrous, cellulose and tanning materials which can be organised as side-lines on farms and provide profitable employment in the slack season. Continuous work spread over a series of years in the Forest Research Institute at Dehra Dun has established the pulping value not only of bagasse, but of many neglected weeds, grasses and other cellulose stuff like linseed stalks. Attention has been drawn to the need of conserving for use the cellulose resources in the appendix on bamboo owing to the threatened scarcity of raw materials for the manufacture of paper and pulp. Fuller information on all kinds of reeds, grasses and other farm by-products should be collected and examined from the employment point of view. In the sub-chapter on sylviculture we have examined the subject of sabai grass cultivation. Here it may be mentioned that sabai is grown by farmers even in the plains in the odd corners and on the borders of cultivated land for domestic and farm purposes. It is possible to grow sabai in small quantities for sale, too, if an appreciable number of farmers take it up in a locality so that a commercial collection of the total quantity becomes possible. Many varieties of acacia or Babul can be grown as hedge and fence. The annual or occasional pruning may provide fodder, fuel and tanning bark. Further information may be collected on the subject.

APPENDIX No. 15.

Aromatic Plants.

Botanical investigations have shown that there are about 100 varieties of aromatic plants from which essential oils may be extracted for providing materials for perfumery, cosmetic, soap, food flavouring, aerated water and drugs industries. Not much is known to the farmers about them. Many of them may be growing uncultivated. There are some which may be cultivated in backyards. We have not been able to collect detailed information.

APPENDIX No. 16.

Banana.

Banana is a complete food by itself, and a healthy food also, both as fruit and vegetable. There is a strong demand, a well developed market and channel of trade for banana apart from the local demand for it for regular use as well as for festivals. The trade in banana is facilitated by its capacity to stand long distance transportation. Two small areas near Hajipur have become famous for two varieties of commercial bananas and a large number of farmers are specialised banana growers. Of the two varieties grown in this area, the quick growing Barasain variety requires less watering and is harvested in 10 to 12 months from planting. The superior Alpan variety takes 15 to 18 months to mature and requires constant irrigation ranging from twice a week in summer, once a week in spring to once in two weeks in cold weather. Both require constant ploughing, harrowing, weeding and manuring. One enterprising farmer has introduced the variety with green skin which is irregularly imported in Bihar and sold at three times the price of the local variety. It has been reported to be doing well on the same intensity of irrigation as is devoted to Alpan. The only handicap which is reported is that the plant is so dwarfish in size that the bunch almost touches the ground and is attacked by stray cattle and jackals. There are many other superior varieties requiring more intensive care which may be introduced in Bihar.

Banana is grown at random by many people all over Bihar and many areas are more suitable for its commercial cultivation than even Hajipur. And yet, large quantities are imported from outside. The urban areas of the plateau region which include the mining, industrial and other towns receive their supplies from Bengal.

Hence, there is a vast scope for expanding the cultivation of banana both as a side-line as well as a specialised plantation. It can be grown everywhere in Bihar in suitable soil, and there is no reason why, whatever the scale of the cultivation, proper methods of farming may not be adopted. The casual grower allows the clump to grow wild and no thinning, weeding, or clearing is done. But on the plots of the regular farmers only one maturing and one growing plants are allowed with proper spacing. This systematic cultivation gives an annual harvest of between 400 to 450 full bunches to an acre. It has already been described that the cultivation requires a fair amount of continuous labour and is thus a very good line for reducing underemployment.

It is recommended that systematic cultivation of banana as a specialised line as well as one of the items in the normal cropping scheme of even the ordinary cereal growers may be encouraged both in the plain and the plateau regions where irrigation facilities are available. We are glad to note that the Department of Agriculture arranges to secure and sell young plants. But it is desirable to adopt measures to popularise the cultivation on a commercial scale in different districts of the State. The technical possibility of the cultivation of banana, used as fruit or a vegetable even in the plateau regions has been fully demonstrated. In many other parts of India, banana growing is an important occupation on the dwarf holdings. We may also note that our land reforms and the Bhoodan movement have been and would be increasing the number of dwarf holdings. The introduction of superior varieties is likely to create even more employment for such small cultivators.

APPENDIX No. 17,

Papaya.

The cultivation of papaya as a subsidiary crop in the odd corners or on the borders of plots can be undertaken easily. Its cultivation as a major crop is reported

to require more care and effort, if quality is aimed at. Papaya has not become a regular item in the dietary of the people mainly because there is no regular production and supply. It is reported that the famous Ranchi papaya, which had got a firm hold of the Calcutta market, has deteriorated. This requires looking into and its cultivation in all suburban areas should be encouraged by organising its marketing. In unripe and semi-ripe stage it can be transported over long distance. It has been ascertained that wholesalers in the fruit and vegetable trade have not taken it up seriously because no regular supplies are forthcoming in the plain. The handicap is that of a vicious circle. The small cultivators assert that they do not takeup its cultivation seriously as there is no market for it, while the wholesalers feel that it cannot be taken up as a regular line because the supply is not steady. At the same time, much research work on the quality and utility of papaya has been done, manufacture of papsin from unripe papaya might be mentioned. It is, therefore, desirable that its regular growing and marketing are organised.

APPENDIX No. 18.

Fruit Growing.

Fruit-growing has many branches. Although Bihar has been called the garden of India, large-scale horticulture is practically non-existent. Most moderate cultivators and other land-owners maintain small orchards while most small cultivators are satisfied with a few trees of such fruits as orange, pomelo, lemon, lichi, guava, mango, jackfruit, etc., for domestic use. In some areas, small and medium farmers maintain small orchards for the purpose of cash income. But from the employment point of vicw, horticulture is still quite an insignificant line of activity. There is, however, good scope for fruit growing and the limiting factor is the competition of the ordinary annual crops for acreage, specially in the plains. In the plateau, it is possible to put new land under fruit. This plateau region is eminently suitable for organised horticulture and for the growing of many citrus fruits which we import in large quantities. Cashew nut is a recent addition and certain varieties of grapes are being experimented with.

There is a growing demand for all kinds of fruits for consumption as well as for export outside the State. Mango and *lichi* are the well known specialities of Bihar. Guava is being grown on an increasing scale to meet local demand even though we have not been able to reproduce the flavour of the Allahabad guava; the fruit attains a very good size here. Green jack-fruit used as vegetable is in great demand and is exported to cities right up to Delhi.

Lalganj was famous for a long time for its oranges. The variety was not very sweet, but commercially it was a paying enterprise for the growers. It has been found that for some reasons which could not be clearly ascertained, the growers have not been renewing their orchards. There are many other kinds of fruits like amla, ber, phalsa, peaches and so on, which can be grown either casually or commercially.

The steady and continuous growth of urbanisation and the increase in the level of income of the people along with a growing taste for fruits constitute factors for a rising demand for them. Moreover, there is a growing demand for tinned fruits (and vegetables). But apart from other factors, the fruit preservation industry requires large quantities of fruits as raw materials at low prices. And the service of the industry to the growers is that the surplus produce can be used in the industry instead of being wasted. Thus these different factors of demand should stimulate fruit growing both as side occupations and in plantations.

APPENDIX No. 19.

Vegetable Cultivation.

The growing of fresh and green vegetables was so far the speciality of a particular caste. Other farmers have been taking to it now apart from the casual growing for domestic use or as a hobby. The demand for vegetables as a part of the daily dietary has been growing and would grow continuously with the rise in the income of the people and the growth of urban population. Hence, vegetable growing has been providing inreasing employment to specialised cultivating families. There is scope for the induction of vegetable growing in the cropping scheme of the non-specialised farmers around urban areas as well as in the villages. The existence of a specialised class of self-employed persons or families belonging to the traditional *Turha* and *Kunjra* class engaged in collecting the produce of the growers and taking it to the wholesalers or retailing it themselves is a favourable condition relieving the growers of the anxiety about marketing.

We have not assessed quantitatively the employment potentials of vegetable growing separately. There are many kinds of vegetables grown throughout the year on scales ranging from a small back yard plot to regular specialised cultivation. The labour intensiveness of most of them, involving the usual processes of spade digging, ploughing, harrowing, composting, manuring, continuous weeding, plenty of irrigation, harvesting, etc., are similar. Hence, the farmer can take up the work to the extent to which he can spare the mandays or man-hours out of his routine of work. The existence of the itinerant middlemen is a very favourable factor for the growers besides meaning the existence of employment potentials for men and women in buying, head-load transportation and selling.

The plateau region of South Bihar is not only suitable for many kinds of fruits of the temperate region, but the European Missions have been carrying on the cultivation of many of the European vegetables in their compounds. Their cultivation is so spread over the whole year that it appears desirable to investigate which of them can be adopted on a commercial scale. Apart from their employment value, their food value lies in the fact that the Indian vegetables include only a very limited number of the leafy types, and practically very little of salad materials. Among the European vegetables grown successfully, in most cases from imported seeds, are various kinds of beans, celery, chicoree, cress, endive, leek, lettuce, special varieties of tender peas, salsify and swiss-chard. Commercial growing of these vegetables would add appreciably to the prosperity of agriculture in the plateau because a large and fastidious market for all sorts of vegetables and fruits is growing up in these regions and in the plain right down to Calcutta as a result of industrial and commercial developments.

Mention may be made of mushroom culture. It is a well organised line in the suburbs of many European cities. In India dehydrated mushroom is imported from West Pakistan. In Kashmir, too, it is collected and dehydrated for the market. But it is not grown systematically anywhere and in the areas mentioned above, it is collected as a natural growth. The use of this dehydrated mushroom, though confined to the more well-to-do people on account of its high price, is well known. It is for consideration whether a demonstration of the method of mushroom culture should be taken up and the possibilities of dehydration examined by the Department of Agriculture.

APPENDIX No. 20. Other Farm Activities.

A number of other farm activities have been considered in the sub-chapter on animal husbandry. These are lac-culture, sericulture, bee-keeping, poultry, fish culture,

sheep and goat rearing, pig breeding and cattle keeping. These items are being mentioned in connection with farming intensiveness to emphasise that we have to consider them from the point of view of labour intensiveness on farms.

APPENDIX No. 21.

Sugarcane Crushing.

Before the large scale introduction of milling sugarcane, it was the practice of each farmer to crush his own sugarcane and to sell the manufactured gur for cash income. It is not recommended that we should go back to the old practice. But what is desirable is that in the interior areas, far removed from the sugar mills, the cultivation of sugarcane and its crushing by the farmers by the bullock driven kolhus should be encouraged. In the areas commanded by the mills, the farmers, freed from the task of crushing their own cane by the slow process of the kolhus, can increase their area under cane according to their farming capacity. In many parts of the State, the cultivation and sale of the cane became the main source of cash income after the loss of opium or indigo as the principal money crop. But in the interior regions, cane crushing for gur making has many advantages and would fit very nicely into the usual farming routine. It can provide a source of cash income in the absence of any good alternative. The process of gur making yields the bye-product of bagasse which is beaten and shredded to provide very valuable fodder which is becoming such a limiting factor on the size of the farm livestock. The bagasse is also used as fuel for boiling the juice. The activity provides full employment for both men and cattle.

There is a good demand for gur for consumption and for the semi-liquid 'rab' for further processing into 'Shakkar'. Large quantities of these commodities are imported into Bihar from Uttar Pradesh. It may be noted that we are not considering here the Khandsari industry which has been wrongly called a village industry. A good Khand ari is a capitalist industry requiring about rupees two lakhs for machinery, appliances and working capital.

In the chapter on Secondary Industries, gur making has been considered as a cottage industry. In this appendix we have looked at it as one of the usual routine activities on a farm. As we shall see, gur making as a cottage industry may be taken up as a separate activity even by a person not cultivating any land at all and crushing the cane purchased from the cultivators.

APPENDIX No. 22.

Gur and Khandsari in the Scheme of the Khadi and Village Industries Commission.

This industry is on the list of the Commission for development. The programme covers the development and popularisation of improved kzlhuz, better methods of extraction as the older kzlhuz extract only 55 per cent to 60 per cent of the weight of the cane, and improved furnaces. Training and demonstration centres have been provided for. The scheme aims both at fostering the manufacture of gur and rab, the latter as raw material for Khandsari sugar. It is urged that the Khandsari method extracts 6.2 per cent grade one sugar, 1.3 per cent grade two sugar and 5 per cent edible molasses against 10 per cent white sugar by the mills. The Khandsari industry is very greatly helped as against the mills by exemption from the levy of the excise duty on mill sugar and the benefit is not always passed on to the consumers.

Improvement in the manufacture of gur has been a responsibility of the Department of Agriculture for a long time. Except for the fact that the improved methods are not as wide-spread in Bihar as in Uttar Pradesh, the Department has been doing all that is possible to evolve superior methods. The Khandsari industry is an independent capitalist industry and is neither suitable for being integrated into the normal farming routine of the cane growers like gur or rab making nor is suitable for small self-employing units. Moreover, there are risks of harm being done to the mill industry in which the country has invested large amounts of capital without increasing employment or decentralising production very appreciably by the Khandsari method.

APPENDIX No. 23.

Bullock Cart Transportation.

This subject, discussed elsewhere from another point of view, is considered here as an activity which is taken up by a farmer with a small holding and with a surplus supply of adult labour in the family. There are periods in which both the men and the bullocks have slack time in agricultural activity. If the farmer owns a stronger pair of bullocks than the one usually yoked for the plough, the animals can be used for plying a cart for the purpose of carrying agricultural produce to the markets or rail-heads, or sugarcane to the mills. Usually return traffic is also available in bringing manufactured and other commodities for the village economy from the towns to the village markets. We have noted elsewhere that the condition of the village roads are generally such that only carts can negotiate them and they enjoy a sheltered sphere of business in this respect. We have also noted how the bullock carts can successfully compete with motor trucks for short distance conveyance of commodities sent out or brought in in small quantities. It has thus been found that in areas round about the towns, industrial centres, railway stations and factories, bullock cart traffic provides a source of employment which to a very great extent solves the problem of under-employment of the agricultural population.

CHAPTER X.

Employment in the Secondary Sector.

- 1. The classification of the sectors of the economy.—According to the procedure of the Census followed internationally, a dichotomy is drawn between the agricultural and the non-agricultural sectors, and the latter includes the extractive industries as well as certain activities of land use like plantations, fishing, hunting and the exploitation of the forest resources. But according to another internationally used scheme of classification, all these activities are included in the primary sector along with agriculture, animal husbandry, forestry, fishery and the extractive industries which are distinguished from the secondary industries embracing all constructional activities and the manufacture of producer and consumer goods. In this scheme of classification the tertiary sector is regarded as covering transportation, commerce and services. Public utilities are broadly included in the last category. It would be noticed that none of these classifications can claim to be clear-cut and logical. But classifications in the social sciences are not so rigid as in the natural sciences and are broadly made from some practical point of view.
- 2. The secondary sector of the economy.—So the secondary sector embraces all productive activities in constructional work and the manufacture of capital and consumer goods. As the economy grows and gross income increases, an increasing percentage of the income and of the labour force is invested in capital works consisting of specific buildings and capital goods like plant, equipment and inventory as well as in the general economic overheads like transportation, water supply, power generation and supply and other public utilities and in their maintenance. The working of the overheads of the economy (public utilities) is, however, being examined separately as a sub-category of the tertiary sector. But we shall deal with all constructional activities connected with the public utilities along with the production of capital appliances and of consumer goods in this chapter.
- 3. The secondary and the tertiary sectors.—The term tertiary sector is sometimes used to mean the consumer goods industries. But we propose to stick to the practice of treating this sector as embracing commerce, transportation and services. It is obvious that all methods of transportation of goods, of men, of information and of value (through the monetary and banking systems) bring about an integration of the economy since all productive activities would be inhibited unless transportation makes the functions of commerce and middlemen effective. Some conventions already established will have to be followed in classifying border-line cases. For example, should an automobile garage or repair shop be classed as a small workshop under industries or as a servicing agency in the tertiary sector? Western economists class all such activities under hand trade.

4. RELATIONSHIP AMONG THE SECTORS.

4.1. The broad relations.—The primary sector provides the raw materials from the agricultural and the extractive industries. The secondary sector processes them and supplies producer or capital goods as well as consumer goods. Then the tertiary sector is concerned with the integration of the economy, bringing together raw material, human resources and instruments of production as well as integrating production with consumption through the transport systems and middlemen. The public utilities integrate the economy over space as well as provide common services for the entire economy. As our investigation and analysis is employment oriented, a

further clarification of the interrelations of the different categories of the secondary and tertiary sectors may not be out of place.

- 4.2. The direct and indirect employment value of the basic industries.—A review of the entire economy shows that the direct employment value of the basic industries, except in agriculture is limited, mainly because they are the industries on which the effects of technological and scientific advances are felt most effectively. These industries are—
 - (a) Mining of the basic minerals like coal, iron-ore, petroleum, etc.—The exploitation of the major minerals has tended to become highly mechanised and capital intensive during the last few years, and India has to adopt these modern methods without looking too much for any growing employment value in them.
 - (b) Heavy metallurgical industries for the manufacture of metals and metal alloys.—
 We know the giant size of the iron and steel plants and the capital costs involved. Even though the size of the aluminium plants may not be so large, the capital investment needed for this industry for each ton of aluminium ingot is ten times that for the same quantity of steel. These industries have been the subject of the most phenomenal scientific and technological advances.
 - (c) The heavy engineering industries for the manufacture of heavy forgings, castings and of machinery for the large metallurgical, electrical and chemical industries.—

 These have become highly capital intensive and call for a very high level of skill.
 - (d) Heavy chemical and allied industries.—The chemical industries have been the direct products of science and reserach laboratories from the very beginning and have been subject to the most revolutionary technological advances. They are highly capital and technology intensive.
 - (e) Power generating industries.—Both thermal and hydraulic power generation in the modern form are highly capital intensive so far as the actual generation of power is concerned. However, like most transportation services, the industry generates further employment directly in transmission and distribution of energy.

The direct employment value of these industries is not very high. Even a most optimistic calculation of the total employment in them after all the development projects have materialised during the next seven or eight years may not place it beyond 2 to 3 lakh in Bihar. But their importance lies in their basic nature and no subsequent layers of industries can be built up without them.

4.3. Indirect effects of the basic industries on employment in transportation and construction.—The foregoing activities necessitate the transport of raw materials and finished products in large quantities and generate more employment in this way than in the basic industries themselves. All kinds of transportation by rail, road and river would create employment in the construction and maintenance of roads and vehicles and for operating them. Increasing industrialisation not only requires movement of goods but also of men and the transportation of information and values.

The heavy mining, matallurgical, power, engineering, chemical and transportation as well as the lighter industries involve a large volume of constructional activities in brick making, quarrying, building construction, road making, earth work, etc. It has been estimated that as much as two-thirds of the capital expenditure in the process of industrialisation may be accounted for in this way. In the early stages of economic growth in a backward economy very large labour force is required for

constructional work in industries, power, water-supply, transport and river valley projects. Each work is separately terminable, but generalisations about the features of a growing economy show that in the entire economic system the constructional work goes on continuously except for temporary recessions. However, a serious problem of deployment and re-employment is created by each constructional work being separately organised and terminated.

4.4. Employment in the intermediate ca'egory of industries.—The term intermediate category of industries has been used here because it is difficult to assign a precise term to all the various kinds of industries ranging from the manufacture of cement, paper, sugar, internal combustion engines, sewing machines, rubber goods, light electrical goods, etc., to textiles, automobiles, drugs, etc. They are goods which may belong to be category of producer goods or consumer goods according to the different uses to which they are put.

The special significance of these industries is that their growth is made possible by the development of the basic industries and their employment potential in aggregate is very high. It is on account of the development of this category of industries that the percentage of persons occupied in the non-agricultural sector was far higher in West Bengal, the Punjab, Madras and Bombay than in Bihar. Even in the present decade the industries in this category have been growing more rapidly in the other states than in Bihar. However, we do look forward to a percentage of our rural population being increasingly absorbed in them as they grow up.

- 4.5. The smaller consumer goods industries and cottage industries.—The distinctive features of this group of activities from the employment point of view are that firstly, the aggregate employment in them is very large and secondly, in this zone of the industrial map there is scope for choice and preference between more capital intensive or more labour intensive methods. For the latter reason, there is a choice for making them more labour employment biased. The case for making them labour intensive during the present transitional stage of our economy has been examined separately. It is only being pointed out here that these industries are expected to lighten the burden of the redundant population in the agricultural sector to a considerable extent.
- 4.6. Industrial activities for the diversification of the rural economy.—Handicrafts and village industries.—We have given figures to show how even Orissa and Assam, which contained a smaller percentage of urban population than Bihar in 1951, showed a larger percentage of the rural population occupied in the non-agricultural sector. There is much to say against a run-away growth of urban population and in favour of a diversification of the rural economy itself. Among other things, a diversification of the rural economy would ease the problem of urban and industrial housing, enable more of the labour of women to be utilised and bring more income to the rural areas for patronising agricultural production of intensive farming and for the all-round development of the amenities in the countryside.

5. THE CATEGORIES OF THE SECONDARY SECTOR.

5.1. The schemes of classification.—For the purposes of analysis and policy formulation a further classification of the industrial or secondary sector is necessary.

The Census of 1951 classified the economically active non-agricultural population into three categories of employers, employees and independent workers. Hence, it drew a distinction between independent workers and associative establishments. We are referring to this classification because we have devoted considerable attention to the independent workers whom we have called self-employed persons. The Census Commission, however, adopted a rigid though logical dichotomy of counting anyone employing

even one hired worker as an employer. Hence, in actual practice, a considerable number of the employers in the Census tables are really small self-employed craftsmen. All these persons gainfully occupied as employers, employees or independent workers are placed in 10 Divisions with their 88 subdivisions. Coming to the classification of the associative establishments we find the following generally accepted schemes.

5.2. Large industries.—Large industries with a capital investment of over Rs. 20 lakh and employing over 500 workers.

It is a useful category for distinguishing it from the medium and small industries in which the classical concept of competition is still operative to a considerable extent. But it is not a homogeneous category by itself. Within it we might profitably draw a line between the heavy metallurgical, chemical and engineering industries with capital running into several errores from the other large industries. Petroleum refineries and large paper mills also belong to the category of super-large capital intensive industries. In these large industries giant manufacturing units are technologically unavoidable. But the controlling unit may be even larger embracing a number of manufacturing units for the sake of planning and control in the public sector or for market and price leading power in the private system. Thus these latter organisational units are the results of choice and not of technological necessity.

- 5.3. Medium industries.—Medium industries are those with a capital of Rs. 5 to Rs. 20 lakh employing 100 to 500 workers. In these industries the technical and economic advantages of size are fully attained at a medium level and any increase in the managerial unit is due to the desire for market power or other reasons. Most of these industries are ancillary to the large industries or are derived from them and tend to grow together in industrial belts. Others, like the sugar industry, are decentralised and grow up near the sources of the raw materials.
- 5.4. Small industries.—Small industries are those which are mechanised, use power and employ capital from Rs. 1 lakh up to Rs. 5 lakh and workers from 10 to 100.

This is a heterogeneous group of various categories, each with its own reasons for survival. Some of them may belong to a vanishing class on its last legs or in process of being swallowed up by the larger units on account of techno-economic reasons. Another class may be surviving on sufference or as ancillary to the larger industries. Yet another class might be surviving on account of the importance of detailed managerial attention it calls for. Finally, another class may be surviving on account of a deliberate policy to preserve the industries for the sake of employment, for the economy of capital, for providing employment for women in the areas of heavy industries or because large investments are not attracted on account of the fluctuating demand for the products. It should be noted that the small as well as the medium units are important not only in the manufacture of consumer goods but also in making producer goods and the large industries may find it useful to patronise them. Thus the nationalised administration of the railways may not be able to diffuse its managerial attention on setting up works for the manufacture of hundreds of small articles which technologically they can easily manufacture. The oil refinery at Barauni may not like to undertake the manufacture of various articles necessary for the industry. The development of power generating stations and the constructional works of thermal and hydel power stations and of irrigation works give rise to a large number of ancillary producer goods industries. Sometimes the term small industries has been used to mean loosely any industry which is not required to be registered under the Factories Act. But for practical purposes it has been found necessary to split these industries into specific categories as we shall see presently and again when we look into the problems of the minor industries.

5.5. Cottage industries.—Cottage industries are those which employ workers up to ten and capital from Rs. ten thousand to a lakh. They may be using small power-driven appliances or hand machines or merely manual labour.

This category, too, is a complex group calling for special studies. They may be surviving on account of the fact that they derive an advantage by being located in the consuming areas. They may be ancillary to the small industries. They may be manufacturing goods for wider markets and are surviving because they require much personal attention of the master. They may be thriving by manufacturing parts for the larger assembling units as in Japan and Switzerland. They may be located in rural or in urban areas. Usually the small and the cottage industries are considered to be closely related and with more or less common problems requiring similar measures for helping them. In actual practice the Planning Commission has found it convenient, as we shall see, to separate some of them from the generic class because of their specific problems.

- 5.6. Handicrafts.—The term handicrafts has been officially adopted by the Planning Commission and has been given a definite meaning to indicate industries with some artistic value produced by skilled craftsmen. We may use this term to cover what are known as house-industries or family erafts which are fairly common and may be more utilitarian than artistic. In Europe and America the term is used in this sense to cover family enterprises producing goods or rendering services to consumers or producers. We may also take cognizance of another class of occupations closely related to the handicrafts, or hand trade as it is called in Europe, in which the craftsmen or their families take on contract to process certain raw materials or semi-finished parts or to make components at home. This class of occupation is likely to open new avenues of employment in urban areas and industrial townships. They, however, require special attention in view of their vulnerability to exploitation by those giving out the contracts.
- 6. Sources of information on industrial employment and unemployment.—Until the Employment Market Information Programme has covered the major employment sectors according to its plan, our sources of information on employment in the industries are mainly the Census tables of 1951, the reports of the Chief Inspector of Factories and the information derived from the statements under the Labour Acts about retrenchment, closures and such other subjects and some figures from the co-operatives. The only information on unemployment is based upon the rather indirect inferences from the statistics of the Employment Exchanges. The Industrial Unemployment Sub-Committee of our Committee sought to collect information from the units in the organised industries by means of postal communications. But it proved unsatisfactory and had to be given up in favour of compiling the figures from the reports under the Mines, Factories and Labour Acts. These returns cover such units as come under sections 2(m)(i), 2(m)(ii) and 85 of the Factories Act. But, as pointed out by the Industrial Sub-Committee of this Committee on the basis of the report of the Chief Inspector of Factories, the figures may not be comparable over a series of years for a number of reasons.
 - (a) The figures in the reports and returns do not include the employees in the administrative and clerical jobs, in the medical and educational services provided by the larger manufacturing units, in watch and ward work and in the sanitary services. In some industries like sugar, quite a number of employees like weighing clerks, the staff on maintaining and running tram-lines, etc., are not included in the factory returns. In the power plants the much larger number of the personnel engaged in transmission and distribution of power are not included in the returns to the Chief Inspector of Factories.

- (b) Moreover, the factory returns give figures of the average attendance and not of the gross number of employees. Hence the number of employees is likely to be 15 per cent over the figures returned, and may be even more in the factories on continuous process than in those working on one or two shifts.
- (c) The Industrial Unemployment Sub-Committee also observes that the cause of steady decline in the number of employees in the bidi, shellac and mica works after the peak figures of 1951 might be partly due to the decentralisation by the employers in order to escape the provisions of the Factories and Labour Acts. Very few returns are available about these establishments as the Shops and Establishments Act has still got a limited geographical coverage.

For all these reasons, the Sub-Committee estimates that the number of employers might be 25 per cent to 30 per cent over the number of workers returned under the Factories Act. Taking these factors into account, the Industrial Unemployment Sub-Committee is inclined to think that the figure of employment in the registered factories might be about 3 lakh instead of about 1.60 to 1.70 lakh according to the returns.

- 7. Recommendation for making the returns of industrial employment comprehensive.— We draw the attention of the authorities of the Employment Market Information Programme to these defects and advise that their forms may be so drawn up as to include complete information on these items which might be escaping the returns under the Mines, Factories and Labour Acts.
- 8. Employment trend in the registered factories.—Subject to the limitations on the comprehensiveness of the figures from the returns under the Factories Act, we are giving below the figures of average attendance from them. We have reasons to believe that in view of the lack of coverage, as pointed out, and in view of the volume of construction works going on but not included in any returns, the employment position on the whole may not be as dismal as might appear from the following table:—

TABLE 51.

REGISTERED FACTORIES AND AVERAGE FACTORY EMPLOYMENT IN BIHAR.

Y	Year.			amber of regisered factories.	Average number of employees.	
	1			2	3	
198	50	••	••	1,591	180,204	
198	51	••	••	1,488	192,150	
198	52	••	••	3,138	172,486	
198	53	••	••	3,434	171,673	
198	54	••	••	4,177	170,683	
19	55	••	••	4,528	173,698	
19	56	••	••	5,046	176,776	
19	57	• •	••	5,430	180,202	
198	58	••	••	5, 589	183,189	
198	59	••	••	6,177	187,259	

9. A summary of the employment figures in the registered factories.—We may next look into the succeeding table which gives the employment figures from the returns submitted to the Chief Inspector of Factories. The object of the table is to show the trend of employment during the present decade. Out of the fairly large list enclosed with the Industrial Unemployment Sub-Committee report we have selected just the industries in which the figures make a respectable show. But we should again note that these figures from factories under sections 2(m)(i), 2(m)(ii) and 85 of the Factories Act, cover the average number of persons employed only to the extent that they come under the provisions of the Factories Act as already seen. Secondly, there is a large number of establishments just below the size covered by the Factories Act and yet account for the major portion of total employment. It may be useful to examine the parallel figures from the Census tables to get a rough idea of the magnitude of employment in certain cases where corresponding categories exist.

TABLE 52.

NUMBER OF WORKERS IN THE REGISTERED FACTORIES IN SOME SELECTED INDUSTRIES.

Industries.	1950	1951	1952	1953	1954	1955	1956	1957	1958
1	2	3	4	f5737	6	7	8	9	10
Flour, Rice and Dal	5,048	5,381	8,036	9,681	10,344	10,004	10,583	10,507	10,154
Sugar (vacuum pan factories only)	28,665	22,405	21,070	21,681	22,981	22,507	21,728	21,825	22,303
Edible oil	1,988	2,466	2,585	2,822	2,659	2,218	2,168	2,162	2,133
Hydrogenated oil	97	105	105	MEN	151	191	209	249	207
Tea	570	602	480	422	460	507	46	44	47
Cold Storage	296	278	273	310	399	317	411	442	599
Tobacco, Cigarette,	21,375	25,950	17,120	16,014	15,749	12,884	11,983	10,823	10,064
bidi, etc. Bidi only	16,971	22,356	14,082	13,153	13,075	10,683	9,920	8,742	8,004
Cotton mills	1,209	1,348	1,266	1,496	1,593	1,212	1,236	1,579	1,803
Jute mills	6,144	6,403	6,184	5,839	5,989	6,112	6,014	5,916	6,126
Silk industry	205	307	303	251	327	347	551	357	324
Knitting	228	225	242	243	135	109	. 105	88	101
Boots and shoes	957	1,023	995	862	707	780	652	685	636
Working of wood in- cluding saw mills.	554	605	813	707	933	1,091	1,313	1,669	2,061
Paper, Pulp and board.	1,163	1,309	1,367	1,272	1,599	1,836	2,831	3,189	3,134
Tanneries and leather finishing.	318	341	328	326	310	320	299	294	297
Heavy chemicals	469	497	374	356	379	370	344	415	497
Fine chemicals and pharmaceuticals.	421	400	324	319	256	392	443	464	476
Lac and shellac	4,317	7,804	5,107	3,407	3,472	4,758	2,860	2,522	1,977
Match	34	20	••	••	••	••	52	407	113

NUMBER OF WORKERS IN THE REGISTERED FACTORIES IN SOME SELECTED INDUSTRIES —concid.

		,							
Industries.	1950	1951	1952	1953	1954	1955	1956	1957	1958
1	2	3	4	5	6	7	8	9	10
Paints, colours and varnishes.	116	151	119	125	127	142	126	88	105
Soap	85	138	138	171	175	119	98	89	103
Coke oven	1,943	1,979	1,976	1,908	1,704	1,609	1,567	1,595	1,581
Bricks and tiles	7,966	6,837	6,683	6,309	6,317	6,026	6,465	6,991	7,753
Glass (non-optical)	1,054	1,549	1,698	1,791	1,254	1,188	1,181	1,968	2,558
China clay and earthen- ware pottery.	••	••	••	31	33	. 43	69	90	129
Cement	3,769	4,725	3,791	3,891	3,834	3,980	4,849	4,614	4,767
Stone-crushing, as- bestos, etc.	1,867	2,216	2,093	530	432	419	764	720	797
Mica and micanite	18,934	16,661	13,305	11,726	10,346	11,806	11,627	12,154	12,27
fron and steel in- cluding castings and tube.	33,488	34,832	33,382	31,906	32,769	32,945	32,254	32,390	24,893
Non-ferrous metals	2,142	2,166	2,414	2,247	2,280	2,194	2,114	2,148	2,254
Cutlery, bolt and nut, trunks, etc.	466	514	258	15 9	241	270	396	373	4,024
Button	428	416	330	344	335	267	240	221	238
Machinery	••	• •				••	• •		••
Jobbing and Engine- ering.	8,183	7,807	3,866	6,293	6,094	6,809	5,634	5,982	6,342
Electric lamps	72	33	40	33	44	76	100	186	265
Radio and phono- graph.	112	376	189	115	79	147	196	471	446
Insulated cables	1,060	1,090	1,127	1,176	1,267	1,510	1,655	1,711	1,874
Railway workshop	12,934	13,623	13,483	12,876	13,024	13,252	13,336	13,107	13,511
Motor repair	823	1,007	825	809	1,116	951	1,470	1,642	1,784
Bicycle manufacture	244	258		114	83	84	84		367

10. INFERENCES FROM THE LAST STATEMENT.

10.1. The food and tobacco group.—There is a slowly rising trend of employment in the flour, rice and dal milling from over 5 thousand in 1950 to cover 10 thousand in 1957. But it must be remembered that this growth may be at the cost of employment in the villages. The oil milling industry (edible oil) shows an upward trend and then a downward trend. Employment in the sugar mills has been fairly large and steady. The cold storage industry does not require any large regular personnel. In the tobacco group, employment in the bidi industry has shown a steady decline. 39 Lab.—41

One explanation which has been offered is that it has been getting decentralised to escape the provisions of the Factories Act.

- 10.2. An explanation of the low figure of the factory returns for food and tobacco industries.—In connection with the food and tobacco industries we may derive some consolation from the figures of the Census tables of 1951 that, except in the white sugar industry, much of the employment is provided by independent occupation. For example, in the grains and pulses industry, there were about 10 thousand independent workers, mostly women, in rural areas. Similarly in the vegetable oil and ghee industry the number of independent workers was over 10 thousand. In the tobacco industry, too, the Census figure is of over 15 thousand independent workers. It need not be repeated that the independent workers are not included in the returns under the Factories Act. However, it is not possible to go into the details of a comparative study or to attempt a detailed estimate of employment under each item. We feel that this detailed checking may be taken up after the Employment Market Information Programme has covered wider fields. Meanwhile we may seek to draw certain broad conclusions from the figures of the table.
- 11. The figures of employment in the other industries.—The lack of business enterprise in the State is shown by the very poor figures of employment in such consumer goods industries as cotton, silk, hosiery, etc. In the boots and shoes industry there are no small units as in the other States and almost all the employment is practically confined to one large factory. Similarly, employment in tanning and leather finishing makes an extraordinarily poor show of about 300 workers in the entire State. Of course, there is a steadily rising figure of employment in the paper, pulp and paper board manufacture. Employment in the heavy chemical industry is naturally small. But in the consumer goods industries of pharmaceuticals, fine chemicals and soap, one would have expected a large employment as against a figure of a little over 500. The match industry gives employment to 407 in 1957. The large-scale coke oven industry has not as yet given rise to the processing of the more valuable byproducts. The employment in the cement industry of over 4,000 is fairly steady. Bricks and tiles factories employ about 7,000 persons. The glass industry (non-optical) has been making steady progress and accounts for the employment of about 2,000. The mica and micanite industry, which is a speciality of this State, has suffered a steady set-back, the employment having fallen steadily from about 19 thousand in 1950 to 12 thousand in 1957.
- 12. Poor employment in the fabrication of the metallurgical resources.—We are proud of our heavy iron and steel industry and some of its fabricating sections giving direct employment to over 32 thousand persons. The non-ferrous metals employ over 2 thousand persons. But an amazing gap is visible in our industrial set-up when we examine the various branches of the medium, small and cottage scale of the engineering establishments. We shall be looking into further details in this respect in some succeeding sections.

13. Further Data Showing the Lack of Business Enterprise in the State.

13.1. The present industrial structure and comparative growth trend.—Bihar is one of the least industrialised States in India with only about 4 per cent of the total population (1951) supported by "production other than cultivation" compared with an all-India estimate of 10.4 per cent. Considering registered factories alone, Bihar with the most extensive mineral resources of any state, has proportionately the lowest number of persons deriving their livelihood either wholly or in part from manufactures. Bihar's relative position among the industrially more advanced states in

respect of employment in registered factories covered by the Census of Manufacturing Industries (1957) is seen from the following table:—

TABLE 53.

					Bihar.	West Bengal.	Bombay.	Madras.	All. India.
	1				2	3	4	5	6
Population (Million	s)	• •	••	••	40	25	36	36	361
Percentage		• •	••		11.1	6.6	9.9	9.8	100
Registered factories	(nos.) cove	ered by C. M	. I. 1957		353	1,580	1,539	821	7,754
Percentage	••	••	••	••	4.55	20.38	19.85	10.59	100
Productive capital	(in crores	of rupees)	••		138	228	301	88	1,062
Percentage		••	••	••	12.99	21.47	28.34	8.29	100
Productive capital	per regist	ered unit (în	lakhs	••	39.00	14.40	19.50	10.70	13.69
of rupees.) Employment ('000)		• •	• •	200. 2015/4	122	456	564	167	1,813
Percentage	••	• •	. 62		6.13	25.12	31.11	9.21	100
Employment per re	gistered ut	nit			345.6	288.6	366.4	203.4	233

While Bihar has fewer registered factories and less industrial employment than the other three states, the per unit employment figure is higher in Bihar than in West Bengal and Madras and also higher than the all-India average. Capital investment per unit is also higher in Bihar than in any of the other three states or the all-India average. This shows that the unit size is large in Bihar and while the number of factories is small, there is heavy concentration of capital and employment in them. But it also indicates the relative under-development of the ancillary, derived and consumer goods industries. However, the number of workers in registered factories formed only about 0.45 per cent of the total population of the State and 1.12 per cent of the total working force. Among the regions, Chotanagpur is the most highly industrialised, which naturally follows from the concentration of mineral wealth in this area. Though less than one-third of the large-scale units are situated here, they provide employment to more than half of the workers engaged in large-scale units. In North and South Bihar, industrial employment is based on agricultural raw materials.

13.2. The size of holdings in the companies.—The size of the average holding in the West Bengal companies was larger than in the Bihar companies presumably because corporate bodies were holding large blocks of shares in companies registered in West Bengal. As for the degree of concentration in share-holding, practically no difference was found between the Bihar and West Bengal companies. Thus in both cases the holding of ordinary shares was distributed as follows:—

- 21 per cent of the share-holders held not more than 10 shares each.
- 37 per cent of the share-holders held not more than 50 shares each.
- 68 per cent of the share-holders held not more than 100 shares each.
- 81 per cent of the share-holders held not more than 200 shares each.
- 91 per cent of the share-holders held not more than 500 shares each.
- 9 per cent of the share-holders held more than 500 shares each.

Persons resident in Bihar held 8 per cent of the total value of all categories of shares issued by companies registered in Bihar and 9 per cent of the total value of all categories of shares issued by companies registered in West Bengal but working in Bihar.

It is also to be noted that the average holding of the Bihari share-holder was smaller than that of a non-Bihari share-holder both in respect of number and value of shares held. Bihari capital predominated in the fields of "Agriculture and Allied Activities", "Construction and Utilities" and "Personal and Other Services".

13.3. Comparative table of total taxable income.—The following table indicates the rise and fall in total income assessed to taxes and percentage change in the total tax proceeds (income-tax plus super-tax plus surcharge) between 1949-50 and 1955-56 in respect of business and professions in all-India and Bihar:—

TABLE 54.

	between 19	ncome assessed 19-50 and t 5-56.	total tax betw	change in zeen 1949-50 955-56.
Classification of business and profession.	All-India.	Bihar.	All-India.	Bihar.
1	2	3	4	5
Production processing manufacture, mining quarrying construction utilities.	ng, Rise (+52.9%).	Rise (+2.2%).	+68%	+15%
2. Commerce, Transport and Communication	Riso (+6.8%).	Fall (-38.9%).	17%	69%
3. Finance	Rise (+66.0%).	Rise $(+62.3\%)$.	+81%	+239%(a)
4. Services elsewhere not specified	Fall (slight) (-2.3%).	Rise (+27.9%).	31%	—16%
Total	Rise (+25%).	Fall (—12%).	+22.8%	-26.6%
	(+25%).	(12%).		

Source.—Government of India, Central Board of Revenue. Income-tax Revenue statistics for 1949-50 and 1955-56.

14. Employment in earth and constructional work and in the manufacture of capital goods.—We are as yet far from manufacturing our own producer goods to any appreciable extent. A beginning has been made with the manufacture of locomotives, diesel trucks, small mining appliances and wagons. A real beginning would be made with the development of heavy, medium and light forges and foundries, re-rolling facilities and other facilities for the manufacture of heavy, medium and light machinery. An account of the projects which are taking shape has been given elsewhere. Moreover, the subject of the manufacture of heavy capital equipment has got to be planned on all-India basis and it is not possible for us to deal with it at the State level. However, we have to note that capital equipment or producer goods may range from very simple appliances to the huge blast furnaces and power generators. Our deficiency in the capacity for the manufacture of producer goods is brought out

⁽a) Although the percentage rise is high, the tax demand under this head formed only 2 per cent of the total tax demand from business and profession in 1949-50 and 10 per cent in 1955-56.

by the returns under the Factories Act. The returns against the item of "Manufacture of machinery" shows blank spaces and there is a small return of the number of employed persons against agricultural implements. The returns of the number of workers against "General and jobbing engineering" was 8,183 in 1950 (in 59 establishments) against 5,982 (in 86 establishments) in 1957. Railway workshops employed about 13,000 workers with slight variations. The weakness of the producer goods industries is further brought out by the fact that with all its metallurgical resources, the State has been singularly deficient in the possession of re-rolling mills, small forges and foundries. It is no doubt a fact that re-rolling activities depend on the supply of scraps which mostly mean the volume of machinery used up during the last 20 years. But rerolling also provides facilities for shaping ingot into more appropriate shapes for further use and fabrication. Looking at the comparable figures we see a clear relationship between the re-rolling facilities and the level of development of medium, small and cottage scale engineering. In 1956 Bihar possessed one re-rolling unit with an annual capacity of 1,620 tons against 27 in West Bengal with a capacity of 2.5 lakh tons, or even Punjab-cum-Pepsu with 56 units with a combined capacity of 1.46 lakh tons. The latter figures clearly show the prevalence of small units and explain the progress of engineering industries as cottage and family scale enterprises.

15. Constructional work Including Earth Work.

- 15.1. Its place in investments.—Economists have calculated that even in advanced countries, about two-thirds of the annual investments are devoted to constructional work against one-third to plants, appliances and inventory. In a backward and growing economy such works are all the more necessary in view of the fact that all the overheads of the economy in form of irrigation works, river valley projects, roads, river training schemes, docks and harbours, railways, bridges, power houses, factory premises, office building, warehouses, public buildings, drainage works, sanitary works, water-supply, etc., have got to be built up practically from scratch. Residential houses grow up as a result of the growth of population and growth in income. Moreover, constructional works as an integral part of economic growth form a continuing activity and gather strength with the growth of the economy and continuous increase in investments. In the maturing economy, the maintenance, repairs, renewals and improvements become an additional continuing and recurring item of investment and employment.
- 15.2. Employment value of constructional work.—We have calculated, though not very accurately, that broadly the annual investments in such constructional works at present are of about Rs. 30 crores. We tried to work out formulas of the employment value of investments in different types of constructional work but we could not complete it. We, therefore, recommend the working out of these formulas with a view to help the forecast of employment from year to year on the basis of the investments undertaken. We know that the returns under the Factories Act do not cover the constructional lines of employment and that very great expansion has taken place in this employment since the last Census year. We sought to calculate it indirectly from the figures of coal consumed in brick burning, but could get no reliable figures. In any case, the employment is expected to be rather some multiple of about 67 thousand employers, employees and independent workers of the Census tables.
- 15.3. Investments and employment in railway construction, roads, bridges and public buildings.—We have not been able to get complete figures of investments and employment in these respects except these which could be had from the State Five-Year Plan. But we think that it would not be difficult to collect the figures if more time is devoted to it. We have also referred in the preceding sub-section to our efforts, which could not be finalised, for working out the employment values of investments in constructional activities of different classes ranging from simple earth

works to re-inforced concrete works and to other works requiring more technological skill and efforts as in the case of constructing large chemical and metallurgical plants. We recommend that these studies should be taken up in view of the growing employment value and the size of employment in the constructional works of all classes mentioned in this and the preceding sub-sections.

15.4. Employment in constructional work in the Second Plan.—In the Bihar Second Five-Year Plan report prepared in 1956, the estimate of employment or manpower required was made for the investments in the State plan development budget for the years 1956—61 and given under statements E(1) and E(2) of Manpower required in constructional phase. The figures are given for each of the five plan development years from 1956-57 to 1960-61 and for the plan period in aggregate under each of the Heads of Development and of the schemes. We are giving here the aggregate figures. The figures in the report are in the number of persons and man-months and the average annual employment would be found by dividing the figures by 5. It may, however, be noted that from the statement it is not very clear as to what quantity of the employment is indicated in the constructional activities.

It is also gathered that the figures do not include those for the Kosi, Gandak and Sone irrigation projects. It is also to be remembered that the figures relate only to the investment under the State control in the public sector for the original outlay of Rs. 214.67 a crores.

TABLE 55.

STATEMENT SHOWING THE ESTIMATE OF EMPLOYMENT OR MANPOWER REQUIRED FOR IMPLEMENTATION OF STATE SECOND PLAN.

Class o	f personnel.			Total number of persons (or man years).	Total number of man-months.	
	1 1 1 1		1	2	3	
Administrative—	<u>1</u>					
Statement E(1)	101	444 447	••	4,949	2,04,863	
Statement E(2)		• •		6,143	2,82,858	
	Tat	tal	••	11,092	4,87,721	
Technical-			•			
Statement E(1)	••	••	••	16,546	6,18,370	
Statement E/2)	••	••	••	22,538	16,73,570	
	Total	••	••	39,084	22,91,940	
Skilled-			-		·	
Statement E(1)	••	••	••	53,048	15,01,703	
Statement E(2)	••	• •	••	12,631	5,47,042	
	Total	••	••	65,679	20,48,745	
Un-skilled—			-			
Statement E(1)	•~	••	••	50,29,792	1,35,18,718	
Statement E(2)	••	••	••	27,203	12,44,904	
	Total	••		50,56,995	1,47,63,622	

These figures give us an average annual employment for about 10,000 persons in administrative and technical jobs and for 10,24,535 (over a million) in the skilled and unskilled category.

- 16. The need of Government measures to foster employment in constructional works.—We bring to the notice of the Government the fact that in view of the terminable nature of each separate constructional scheme, but because of the continuing nature of these schemes as a whole from year to year, the State and the Central Government should in consultation prepare in advance and keep ready long-term schemes of employment, deployment and re-employment for each region or State to avoid hardships to the workers and to enable employment in these developmental schemes to be relayed smoothly over long period. In addition, we learn that an organisation of employment on regular maintenance, repairs and renewals may be worked out for all works on the model of the system followed by the railways. We recommend for a more wide adoption of the system of some of the large establishments of having a small complement of constructional personnel on a permanent footing.
- 17. Need of attention to employment in constructional work.—The system of constructional work through contractors and sub-contractors is growing up as a well-organised business ent rprise with very wide powers of employment. The recruitment of the personnel of various categories by the firms of contractors now requires a detailed examination which we have not been able to go through. Most of the contractors have a complement of office staff and of skilled personnel as a permanent clientele who move from place to place according to requirements. A system of keeping in touch with the rest of their semi-skilled and unskilled labour has been in practice and they are called for when required. The entire field of employment in constructional work calls for the same attention for welfare and regulation as is being devoted to the labour in the organised industries and we draw the attention of the Government to it.
- 18. Handicaps to the employment of Biharis in the constructional activities.—A very important feature of the recent large-scale growth of constructional work is that in this field, too, local enterprise has been singularly lacking. Most of the important firms in the line of construction work have got their head-offices outside Bihar. They have been very unwilling to recruit their office and semi-skilled staff in Bihar. It has been gathered that even in the field of unskilled work, contractors from outside have brought large teams of workers, already known to them, from outside this State even though the earth and constructional workers of Bihar are known to have built up the tradition and habit of going out annually far afield out of this State for work. In view of the growing importance and employment value of this sphere of work, the entire system requires an examination from different points of view.

We are referring here to the recommendations we have made in the Chapter XIII on the employment of educated persons in contract business. We have recommended there certain facilities to be provided to project educated persons with limited capital into the expanding sphere of employment in contract business.

- 19. Development of the organised industries during the Second Plan period.—A brief review of the industrial growth in shape of the expansion of the existing units and the setting up of new units which have been achieved or are projected in the large and medium industries are attempted here. It has not been possible to collect information on the employment values of these enterprises, but information is given in so far as they are available or can be estimated.
 - 20. Schemes in the Public and the Co-operative Sectors.
- 20.1. Foundry-forge and Heavy Machinery Plant at Hatia (near Ranchi).—Projects for a Heavy Foundry-forge Plant with Czech collaboration and a Heavy Machinery

Plant with Russian collaboration to be located at Hatia have been finalised. These but complementary manufacturing units. The manufacture separate of castings and forgings is necessary before parts can be machined and fabricated. The primary object of the heavy machinery plant is to deliver one complete steel manufacturing unit every second year to the iron and steel industry. Ranchi is an ideal site for the combined project, located as it is centrally between the steel cities of Jamshedpur, Rourkela, Bhilai and Durgapur, and also near the coalfields. As these two new plants will mainly produce steel plant equipment, and the future growth of the steel industry must be in the coal and iron ore belts, Ranchi is also well situated for the distribution of the final products. The two projects at Hatia will employ about 7,500 people in the first stage and about 14,000 people in the second stage. Taking into account the secondary employment which should be generated as well as the possible growth of ancillary industries, it is clear that Ranchi will become a mojor industrial centre in the country, and if this growth can be properly regulated and planned, the economy of the whole area would be greatly benefited. Ranchi is also being linked with the broad gauge railway system to establish direct contact with Muri, Rourkela and the coal washeries.

20.2. The National Coal Development Corporation and the Coal Washeries.—The head-quarters of the Corporation which has been set up for expanding the output of coal in the public sector and for opening up new coal-bearing areas has been located at Ranchi. The Corporation has greatly increased the raisings of coal at Kargali in the Bokaro coalfields, and is engaged in major developmental works in the South Karanpura coalfields, in the Ramgarh-Barkakana area.

Coal washeries .- The construction of one large coal washery, which will supply washed coking coal to the Rourkela and Bhilai steel plants, has been almost completed at Kargali. Three more large washeries for washing Jharia coal for supply to the steel plants in the public sector are planned to be located at Dugda, Patherdih and Bhojudih. Construction of one of these three new washeries is being taken up immediately by Hindusthan Steel Ltd. Investigations have been completed for the establishment of other major coal washeries for supply of washed coal from Jharia to industries in the private sector. An important aspect of the location of these coal washeries is that it will be economical to locate the new power plants near these washeries so that the "middlings" can be utilised for generating thermal power. A decision has been taken to locate the third thermal power station of the Damodar Valley Initially it will have 125 MW capacity, but later it may be Corporation at Dugda. expanded up to 600-700 MW. We shall be examining the importance as well as the possibilities of thermal power generation for the economy of Bihar as a whole and of Chotanagpur in particular in the chapter on the overheads of the economy (Chapter X -sections 10 to 17).

- 20.3. High Tension Insulator Factory at Ranchi.—During the Second Five-Year Plan, it is proposed to set up a High Tension Insulator factory in this State. This factory will produce from Bihar raw materials 2,400 tons of high tension porcelain insulators per annum. Orders for the supply of the machinery and equipment has been placed with the foreign trading agency of the Government of Czechoslovakia on very favourable foreign exchange terms. The site for the factory has been selected at Ranchi on the advice of of the Czechoslovak experts who will also supervise its erection and will guarantee the production in quality and quantity. The factory is expected to be completed by October, 1960.
- 20.4. Uranium Processing Plant.—The Raw Materials Division of the Department of Atomic Energy has been engaged for sometime in detailed prospecting in Bihar for radio-active minerals and other minerals useful in the production of nuclear power. The Department has recently announced its decision to set up a plant for beneficiating

and processing uranium ore in the Singhbhum district. The site has been investigated and the detailed project report is being prepared.

- 20.5. Steel Plant at Bokaro.—The Government of India have decided to locate the fourth steel plant in the public sector at Bokaro. It has been suggested that a steel plant at this site might ultimately produce 5-6 million tons of steel per year very economically. In the budget of the Central Government for 1958-59, a provision of Rs. 50 lakh has been made for the development of the Bokaro site, and this work has been taken up by Hindusthan Steel (Private) Ltd. with the assistance of the State Government. The actual construction of the steel plant will, it is hoped, be taken up in the beginning of the Third Five-Year Plan. Apart from providing employment in the constructional stage, the direct employment in the operational stage may be for about 30,000 persons and increase as the plant capacity is expanded beyond the initial one.
- 20.6. Sindri Fertilizers and Chemicals Ltd.—During the year 1954 the construction of the coke oven plant was completed with a capacity of one thousand ton of coke per day. During 1955 the plan of the expansion of the factory was drawn up with a view to increasing the nitrogen capacity of the plant by 60 per cent. During the year 1956, considerable progress was made in regard to the construction of the urea plant with a capacity of 70 tons of urea per day. During the year 1957, considerable progress was made in construction of the expansion departments of the factory. During the year 1958, the construction of the expansion plants of urea and double salt was almost completed.
- 20.7. Superphosphate Factory at Sindri.—The State Government have established a Superphosphate factory at Sindri. The factory, which was commissioned in April, 1958, can produce 16 thousand tons of superphosphate per annum working on a single shift. This factory will now be able to meet to a large extent our need for chemical fertilizers and will stimulate agricultural production in Bihar. It is proposed to run a second shift soon. There is provision in the Second Five-Year Plan for further expansion of the factory, either by the establishment of a second acid plant or by making mixed fertilizers or both. The expansion proposals which are being examined, may however, have to be postponed becasue of foreign exchange difficulties.
- 20.8. Oil Refinery at Barauni.—Besides Bokaro and Ranchi, a third new industrial area which is developing in the State is at Barauni, where the broad-gauge system of the Eastern Railway has been connected by a bridge over the Ganga to the metergauge railway system in North Bihar. It has already been decided to establish a large oil refinery at Barauni for the processing of crude oil to be brought there by a pipe-line from the oilfields in Assam. Not only the establishment of the Refinery itself, but the possibility of utilising the refinery by products for the manufacture of fertilizers and other chemicals will mean that Barauni will develop into an important industrial township.
- 20.9. Co-operative Sugar Mill at Banmanki.—The scheme of a co-operative sugar mill at Banmanki has been approved and also licensed by the Central Government.
- 20.10. Co-operative Spinning Mill at Mokamah.—A license for a Co-operative Spinning Mill with 12 thousand spindles has been obtained from the Government of India and the Weavers' Co-operatives in the State have already contributed Rs. 9. lakh towards the share capital.
- 20.11. The Spun Silk Mill at Bhagalpur.—This scheme is awaiting approval by the Central Government. As Bihar is the leading tassar silk producing State, the utilisation of tassar and other silk waste is calculated to expand the weaving industry and to stimulate silk and tassar worm rearing.

- 21. Other projects in the public sector.—The State Government have been trying to secure the location of a number of other public sector projects in Bihar and mention may be made of these. The purely economic justification for locating them in Bihar is very strong but the Government of India have got to take into account other considerations as well. These projects are
 - (i) A plant for the manufacture of basic organic chemicals and dyestuff intermediates for which the Government of India in the Ministry of Commerce and Industry have been negotiating for West German collaboration.
 - (ii) A plant for the manufacture of antibiotics, hormones, sulpha drugs, alkaloids and surgical instrument in collaboration with the Soviet Union.
 - (iii) A plant for the manufacture of pure graphite through the Department of Atomic Energy.
 - (iv) A plant for the manufacture of carbon black through the Ministry of Commerce and Industry.
 - (v) A factory for the manufacture of metre-gauge railway coaches at Barauni,
 - (vi) Certain projects for the manufacture of heavy equipment for the Ministry of Defence.
 - 22. EXPANSIONS AND NEW PLANTS IN THE PRIVATE SECTOR.
- 22.1. The Tata Iron and Steel Company, Ltd.—The two million ton project of the Tata Iron and Steel Company, Ltd. has been completed by the year 1958. The first phase of the expansion of plants consisted of complete remodelling of the Steel Melting Shop-3, and 5 open hearth furnaces. This was expanded into the two million ton scheme later on. As the Company had a very large surplus staff and personnel, the net additional employment would be a limited one. But it is gratifying to note that in spite of the handicap it has imposed, the Company has preferred to give the Indian technical staff the chance to learn to operate the new plant instead of engaging foreign personnel from abroad on a permanent basis.
- 22.2. The Tata Engineering and Locomotives Co., Ltd.—The Tata Mercedes Benz Shop went into production during 1954. During the same year the construction of the steel foundry section was started. During 1955 the Tata Engineering and Locomotives Company, Ltd. embarked on an expansion with the programme providing for doubling the output of locomotives and diesel trucks. During the year 1956 the expansion programme continued and there was an increase in the employment in the auto division. The expansion of the welding shops was also taken into hand. Further expansion in the capacity for the manufacture of welded items of plant and equipment has also been undertaken.
- 22.3. The Indian Copper Corporation, Ltd., Ghatsila.—The Indian Copper Corporation, Ltd. embarked on the construction of extra capacity and for the improvement of the factory. In 1957 steps were taken for the construction of a new plant for the electrolytic process of copper ore refining.
- 22.4. The Indian Cable Company, Ltd. at Jamshedpur has taken up the manufacture of rubber insulated cables.
- 22.5. Indian Explosives, Ltd., Gomia.—The opening of the explosives factory at Gomia in November, 1958, has been a landmark in the chemical industry. It is owned by the Indian Explosives Ltd., a joint venture of the Imperial Chemical Industries and the Government of India. It is the first commercial blasting explosives factory in

India and has been located at Gomia within easy reach of the coal supply as raw material, of Bokaro supplying power and the Konar dam supplying water.

23. Licensed projects in the private sector.—It is not quite easy to forecast the extent to which all the new schemes for which licences have been issued up to year 1957 under the Industries (Development and Regulation) Act of 1951 would materialse soon. The list, however, is quite encouraging.

Four of the large existing cement factories at Chaibassa, Sindri, Japla and Banjari have been licensed to expand their capacity and the starting of three new factories at Dalmianagar, Demu (Palamau) and Gurgaon (Palamau) have been licensed.

One sugar mill has been licensed to manufacture 80,000 gallons of alcohol per month.

Seven sugar mills have been licensed to expand their capacity and two new units (one being the Co-operative Sugar Mill at Banmanki) have been approved.

The expansion of the paper mill at Dalmianagar has been sanctioned and a new unit has been licensed to be opened at Sahibganj.

The cotton mill at Phulwarishariff has been licensed for expansion and two new units (one being a co-operative one) have been approved.

Thirteen units, mostly new ones, have been licensed for the manufacture of refractories. All are located in Chotanagpur.

The Indian Tube Company, Ltd., and the Tinplate Company of India, Ltd., both at Jamshedpur have embarked on substantial expansions and a new unit has been licensed at Jasidih for tube manufacture. Five other units for the manufacture of cast iron pipes and spun pipes or for the expansion of the existing capacity have been licensed at Jasidih, Jamshedpur, Jharia, Bokaro and Chakulia.

The Indian Steel and Wire Products, Ltd., has taken up a scheme of expansion. One unit has been approved for the manufacture of surgical instruments.

Among other engineering units licensed for a new plant or expansion are a steel casting factory at Dhanbad and another at Jasidih, a carbon and manganese steel casting unit at Dalmianagar along with a unit for cast grinding balls.

A unit for the manufacture of structurals has been sanctioned at Kumardhubi and another at Bokaro.

Two units for the manufacture of mining machinery have been approved at Dhanbad. The Rohtas Industries, Ltd., is adding a new unit at Dalmianagar for the manufacture of tin containers and steel drums. An existing unit at Marhowrah is taking up the manufacture of automatic juice scales for sugar mills.

With regard to the chemical industries, the Rohtas Industries, Ltd. is expanding the capacity for the manufacture of caustic soda and extraction of sulpher from pyrites. A new unit has been approved for the manufacture of red oxide.

An existing unit at Patna has been sanctioned for the expansion of the existing G.L.S. lamps manufacturing capacity and for taking up other lines of electrical goods. Other units have been approved for the manufacture of other electrical fittings at Nirsachatti, Dhanbad and Patna.

Finally, it may be added that the development of the industries at Durgapur (iron and steel, hard coke and coal derivatives) and Jaykaynagar (expansion of the aluminium plant) are of considerable employment value for Bihar as well.

- 24. Additionat recommendations of the Techno-Economic Survey.—After examining the technical and economic facilities and prospects in this State, the Techno-Economic Survey has recommended the establishment of the following industries:—
 - (i) Alloy Steel Plant.
 - (ii) Structural Shop.
 - (iii) Light Forge Plant.
 - (iv) Light Bar Grinding Plant.
 - (v) Malleable Casting Shop.
 - (vi) Electric Motor and Generator Plant.
 - (vii) Plant for the manufacture of Sulphur and Sulphuric Acid from pyrites.
 - (viii) Plant for the manufacture of Caustic Soda and Chlorine.
 - (ix) Low temperature carbonisation of Coal.
 - (x) Manufacture of Calcium Carbide.
 - (xi) Manufacture of Sorbitol, Ascorbic Acid and Riboflavin from by-product of sugar factories.
 - (xii) Manufacture of Silicon Carbide.
 - (xiii) Manufacture of Ethanol from Molasses.
 - (xiv) Manufacture of Pulp from Bagasse.
 - (xv) Manufacture of high grade paper from Linseed Straw.
 - (xvi) China clay.
 - (xvii) Artificial Graphite.
 - (xviii) Electrical Porcelain Plant.
 - (xix) Sanitary Ware.
 - (xx) Quartz grinding plant.
 - (xxi) Refractory Silica plant.
 - (xxii) Sewer and Irrigation Pipe.
 - (xxiii) Mica Brick and Insulation Plant.
 - (xxiv) Mica Grinding Plant.
 - (xxv) Potato flour from dried potatoes.
 - (xxvi) Bone Meal Fertilizers.
 - (xxvii) Phosphates from Apatite.

We believe that this promising list provides a large scope for joint enterprises in which the State and private investors and entrepreneurs may participate.

25. The growth of industrial townships in relation to employment.—The term economic overheads is a very convenient one signifying what are also known as external economies. These economies may arise from the facilities provided over large geographical areas through specific services of transport, power supply, etc. There is, however, another class of external economies which are made possible or arise out of the congregation of industries and industrial population in particular localities. This is the importance of the growth of industrial townships.

With the establishment of heavy industries in the public sector, new industrial townships are expected to grow at Ranchi, Bokaro and Barauni. There are also good prospects of similar townships developing at Adityapur (near Jamshedpur), where a further expansion of the steel plant and the establishment of steel processing industries can be envisaged, and at Barkakana, which is an important railway centre in

the fast developing south Karanpura coalfied eminently suited for the setting up integrated coal-based industries. The location of further industries at Sindri in the Third Plan would be not unlikely as the area is particularly suited for the manufacture of chemicals and plastics. Industrial sites near the Damodar Valley Corporation colony at Maithon are in demand and the possibilities of developing industries near other Damodar Valley Corporation installations in Bihar are being examined. Another possible industrial site is at Muri, provided the water resources in this are augmented. In North Bihar, it is possible that the broad-gauge line may be extended in the third plan from Barauni to Samsatipur and Darbhanga; in which case the industrial potentialities of these two towns will be considerably increased. It is, therefore, necessary for the State Government to prepare master rural-urban plans for the development of all these areas. Preliminary work has been done so far by the State Town Planner's Department for Adityapur, and surveys of the Ranchi, Bokaro and Barauni areas (including Mokameh on the south bank of the Ganga) have been taken up. A proposal for acquiring and developing sites in the industrial townships for the future location of ancillary industries in the private sector is being examined.

The growth of industrial townships and of other urban areas as we have examined elsewhere (Chapter VI) would necessitate the planning of complementary employments in all these centres of population. To a considerable extent the process of the growth of employment in transport, commerce and servicing would be automatic. But a certain amount of planning where the automatic processes do not produce the desired results would be necessary. We expect that further industrialisation and the growth of new townships and conurbation would lead to the creation of permanently resident industrial population. It would, therefore, be necessary to purposefully locate lighter industries in the areas of heavy industries to provide employment for women and surplus members of the industrial families. This development would also facilitate what has been called rural-urban planning which seeks to co-ordinate the urban and the rural economies of a locality for mutually stimulating and supplementing each other.

It may also be desirable to avoid too much of concentration of purely urbanised population by developing means of passenger transport from the surrounding areas to enable an appreciable portion of the workers in the industries to come from the villages as day or night workers.

26. The climate for economic growth.—References have been made at several places in this report to the role of the entrepreneurial work, whether private or public, in the creation of employment. Three important considerations are involved in the question of the general growth of the economy. Firstly, there is the question of the set up of the economy with its facilities of the economic overheads and external economies. Secondly, there is the question of the removal of impediments to incentives and enterprise. Thirdly, there is the question of the deficiency in the supply of private business enterprise even when appreciable facilities and incentives have been provided.

The economic overheads provide the facilities external to the specific industrial units. They might belong to the class which is developed as a result of the growth of an economy like the economic dimension of the market resulting from the growth of national income. Another class of external economies arise out of the aggregation of industries as in industrial townships. We know how these external economies are sought to be created in form of common facilities by establishing Industrial Estates. Then another class of external economies or overhead facilities either grow up in response to economic growth or have got to be provided over wider areas in form of specific enterprises. To this class belong the growth of facilities of transport and communication, of banking and credit services, of the supply of raw materials, of

the supply of technical skill, of the growth of a responsible labour market and various other aspects of a developed economy. All these factors affect the cost structure and the quality of the products. They are all mutually inter-related and one stimulates the other. Thus the value of a balanced growth is emphasised because a developing economy is an integrated system and all the components of the system or the structure must grow in the right proportion.

- 27. Handicaps to business enterprises as seen by entrepreneurs in Bihar.—The Industrial Unemployment Sub-Committee made a special investigation into the causes which make Bihar less attractive for business enterprises than other states. The details of the views of entrepreneurs and the comments of the different departments of the State Government on them are treated elaborately in the report of the Sub-Committee. Looking into them we find that the main features of the grievances are those which have been voiced since the very first two meetings of the committee. The broad requirements voiced by the entrepreneurs are concerned with the following:—
 - (a) Acquisition of land.—The State Government should assist the prospective industrialists in acquiring land at suitable sites quickly and at reasonable prices.
 - (b) The State Government should find ways and means to supply electrical energy at cheap rates to the prospective industrialists. The cost of electrical energy for the industries in Bihar as compared to the other states is a serious handicap, and the Committee has examined this question again when dealing with the subject of power under the economic overheads (Chapter X).
 - (c) It is urged that new industrial establishments with a capital of Rs. 5 lakh or less should be exempted from income-tax for a period of 5 years.
 - (d) There should be no sales-tax on raw materials of any kind. The vegetable oil industry has shifted to Calcutta on account of the sales tax on oilseeds. Taxes on finished products should be comparable to those in neighbouring states.
 - (e) In order to provide cheap credit facilities to the industries the capital of the State Finance Corporation should be substantially increased and loans to industrial firms up to Rs. 15 lakh should be admissible. It was brought to the notice of the Committee that considerable delay is caused in disposal of the loan applications by the Bihar Finance Corporation which is also reflected from the report of the Corporation for the year 1958-59. We, therefore, recommend that the disposal of the loan applications should be expeditious and it should not, in any case, take more than six months.
 - (f) There should be adequate development of road and railway transport facilities so that the working of mines and industries is not interrupted.
 - (g) The mineral policy of the Government should be examined with a view to eliminate the hindrances to the development of mining.

The Industrial Unemployment Sub-Committee has referred to the special facilities extended by other states like Orissa for attracting industrialists by arranging for the supply of power at subsidised rates, free acquisition of land and similar other facilities. The Committee expresses the view that the facilities offered in this State are far from attractive and recommends the setting up of a special agency to deal with this subject. The Committee took note of the policy decisions of the State Government contained in the speech of Dr. S. K. Sinha, the Chief Minister of this State, in the annual meeting of the Bihar Chamber of Commerce on the 23rd November, 1959. It seems necessary to devise ways and means to implement these policy decisions vigorously.

28. DEFICIENCY OF PRIVATE ENTERPRISE.

- 28.1. The State may not be able to supply all the enterprise necessary for running the economy. While we have argued from several points of view in favour of the role of the state in undertaking new enterprises in a backward economy in order to speed up growth, it is also realised that the managerial resources of the state, too are limited. Besides, there are obvious limitations on bureaucratic management of business enterprises where detailed administration is called for. For all these reasons, there is a vast field in the economy which must continue to depend on private enterprise. Any examination of the pattern of an economy would show how the medium and small industries commerce and servicing, all of which account for the major portion of aggregate income and employment, must depend on private enterprise. Even the large business enterprises in the private sector, not to say of the state, look upon the provision of services and ancillary industries as relieving them of much of the distracting activities which would tend to impinge on the sphere of their main responsibility.
- 28.2. Deficiency of private enterprise in Bihar.—And yet the pattern of our industry and occupations shows that private enterprise has been singularly absent in this State and this has not only checked the progress of the economy but has also severely restricted the field of employment of both unskilled labour as well as of skilled and educated persons. The Committee has examined the returns under the Factories Act and the Census Tables of livelihood in Bihar along with those of other states and of India and finds very glaring gaps in our economy. Some of these have been pointed out in other sections of this chapter by way of illustration. We think, however, that full and detailed examination of these data would be very useful for the purpose of employment policy formulation.
- 29. Recommendations for increasing the supply of business enterprise.—In view of the findings noted in the foregoing paragraphs, it is recommended that
 - (a) The Government should continue to implement all the existing State measures for encouraging and nursing private enterprise, and specially local enterprise, and should consider favourably other specific measures which are being recommended in appropriate places.
 - (b) At the same time, we make a definite recommendation for the expansion of the sphere of State and co-operative enterprises on the basis of purely practical considerations for reasons given below whenever private enterprise is not forth coming.
 - (i) The unsuccessful efforts of the Government in persuading private enterprise to undertake certain schemes and ventures in spite of the help promised by the Government.
 - (ii) The records of the loans advanced by the Bihar State Financial Corporation show that genuine local enterprise and willingness to invest in risk-capital, even when the risks have been reduced considerably by the efforts of the Government, is not forthcoming.
 - (iii) It has been definitely established that there is always an unresolvable bias on the part of the enterprises registered outside this State or owned or managed by persons coming from outside this State to prefer for employment educated candidates from the other states.

There has been a recent experience that the firms of contractors engaged in the large constructional works have been very reluctant to employ local personnel even in semi-skilled work.

(c) The Committee further recommends that both as a business proposition for increasing the capital resources for the State enterprises as well as for making the management of these enterprises more alert, elastic and efficient, private participation in the share capital to the extent of 49 per cent and appropriate participation in the management of these enterprises in a system of mixed State and private industrial ventures be adopted.

We note that certain other states have found this system of joint public and private enterprise very useful in stimulating both capital formation and the supply of business enterprise.

30. Financial assistance to industries.—There are various forms of state assistance to industries, viz., land acquisition on an emergent basis, selection of suitable sites, supply of power, state help in water-supply and provision of housing for workers under the Industrial Housing Scheme. Necessary assistance is extended to industrialists by the State Government in the matter of supply of essential commodities and transport facilities. The applications are also sponsored to the Central Government under the Industries (Development and Regulation) Act. The industrialists are also assisted in obtaining import licenses and in obtaining the requisite—quantity of foreign exchange and with regard to tariff protection and other facilities, which are within the purview of the Government of India.

So far as direct financial assistance to industries is concerned large units are given assistance by the Industrial Finance Corporation, the National Industrial Development Corporation, the Credit and Investment Corporation, etc. All these bodies have been set up by the Central Government. In addition the large scale units are given assistance in an ad hoc manner by the Central Government.

At the State level, direct financial assistance is rendered by the State Financial Corporation or under the State Aid to Industries Act. The following statement shows loans granted to small scale industries under section 4(a) of the Bihar and Orissa State Aid to Industries Act since the year 1953-54. Some of the beneficiaries are registered factories covered within the terms of the Industrial Unemployment Sub-committee.

Year.			_	Total amount of cans sanctioned.
				Rs.
1953-54		• •		2,42,390
1954-55		••		1,72,225
1955-56		• •		7,34,770
1956-57		• •	• •	16,32,422
1957-58		••		14,95,500
(up to 31st	$\mathbf{Dec.}$			
1957).				
1958-59			• •	4,63,210
(up to 31st	Decemb	er 1958)		

The total amount of loans sanctioned by the Bihar State Financial Corporation from January, 1955 to 31st December, 1957 amounted to Rs. 83,26,000. The actual amount disbursed in the same period was Rs. 56,11,000.

Among the medium sized industrial units assisted from these sources, we may mention the following:—

- (i) Micanite factory at Koderma.
- (ii) Factory for the manufacture of mining equipment, such as haulages, coel cutters etc. at Dhanbad.
- (iii) Factory for the manufacture of butter, sugar of milk and casein at Madhepur.
- (iv) Factory for the manufacture of metre gauge railway wagons at Muzaffarpur.
- (*) Foundry at Jasidih where the latest techniques, viz., hot blast cupola is being introduced.

We may conclude that assistance under the State Aid to Industries Act is not very significant quantitatively. The main difficulty seems to be that not many enterprisers come forward and take advantage of the loan facilities. It may be worthwhile to examine in what manner the loan facilities offered by other State Governments are made more attractive to entrepreneurs.

- 31. Establishment of Industrial Estates.—We have welcomed the establishment of Industrial Estates which are designed to stimulate the development of small-scale industries. The facilities of conveniently located factory sheds, power, water, machinery available on a hire-purchase or rental basis should give an impetus to industrial development in the four places where Industrial Estates have been set up in the first instance. It may be worthwhile to build industrial states at the centres of heavy industries with a view to promote balanced industrial development of these areas.
- 32. Necessity of preventing a misuse of the funds advanced to the loanees.—It has been brought to our notice that it is not uncommon for would-be entrepreneurs to borrow money from the Government under the State Aid to Industries Act and to utilise the funds for a quick turn-over in commerce. We recommend that such abuse of the resources should be checked by regular inspection and publication of annual reports on the progress of the business units. We feel that a small additional expenditure on vigilance and check would be fully justified. If this work is made the sole responsibility of a Gazetted Officer in the Department of Industries, it would be possible for him to make these investments positively effective from the employment point of view. We know that commercial activities are mainly employment absorbing rather than employment generating.
- 33. The need of an examination of the multiplier values of the large and medium industries and of a scheme of co-ordinating the different types of complementary industries.— Frequent references have been made to the fact that we have not been able to build up the super-structure of our economy in spite of our mineral and metallurgical resources and the large manpower. We, therefore, recommend that
 - a detailed scheme showing the position of the nodal points of the large industries be prepared as has been done by the West Bengal Government with a view to bring out the full possibilities of the ancillary and the derived industries and to develop a systematic and co-ordinated economic structure. This measure is all the more necessary because the Committee finds that the direct employment value of the heavy basic industries is limited and that Bihar has not been able to utilise their employment multiplier values to the full extent by developing the ancillary industries serving them or the derived industries arising out of them. Therefore, in view of the fact that the typical heavy and basic industries are highly capital intensive with only limited employment potentials, the Committee lays very great emphasis on an adequate development of the industries based upon the

products of the basic heavy industries and of the ancillary industries. We further note that in view of the work already done by the Techno-Economic Survey, no fresh enquiries are called for except to a limited extent and that the study can be prepared on the basis of materials already available.

- 34. The burdens on the cost structure of the Bihar industries.—In view of the fact that the question of the incidence of the higher charges for electrical energy supplied to the industrial units in Bihar as compared to the cost of the same in the Calcutta region and of the effect of the multiple sales tax of the small enterprises using raw materials brought from outside were raised a number of times without leading to any conclusive resolution, we recommend
 - that the whole problem of the costs of the common overhead factors and of the non-cost burdens be examined to find out if any or all the industries of Bihar suffer from any net disabilities after allowing for the special advantages enjoyed.
- 35. Fuller utilisation of the coal resources for increasing employment.—We note that in the interest of efficiency and keeping down the cost of production of coal, mechanisation of the mining industry would be unavoidable and no large increase in employment in mining is expected. We, therefore, recommend that the State Government should place before the Government of India the need of locating coal-based industries more liberally in this State and should also participate in such enterprises with a view to off-set the limitations on the growth of employment in mining. This employment oriented recommendation for power and chemical industries based on coal is fully supported by technical and economic considerations as well.
- 36. Re-rolling facilities and small foundries and forges.—The Committee has compared and examined the close inter-relations between the re-rolling mills, and small foundries and forges and the growth of small and cottage engineering industries as have grown up in West Bengal, the Punjah and elsewhere and finds that the want of these facilities in Bihar has seriously affected the growth of small and cottage engineering industries with their high employment values for educated persons and skilled workers. It has been noted that while large units are necessary for the medium industries, small decentralised units would be necessary for the benefit of the smaller enterprises as are necessary for improving the employment situation in North Bihar. Now that the prospects of the supply of coke, pig-iron and steel are brighter, efforts should be made to remove these deficiencies.
- 37. Utilisation of the by-products of the sugar industry and employment in the less industrialised regions.—We learn that the technical processes for manufacturing paper from whole bagasse have been successfully worked out. However, we have further gathered the information that it may not be possible for the sugar mills to completely replace the burning of bagasse in the furnace by coal on account of the capital cost involved in replacing the existing furnaces and the difficulties of storing coal. There is the additional factor of the higher cost of transport of coal in North Bihar. But we have found that the factories can save at least 50 per cent of the bagasse if they can be lifted daily from the factory premises. We, therefore, recommend investigation into the possibility of the technical process of pulping the bagasse on the spot and the work being taken up by separate enterprises if the factories are not prepared to increase the complexity of their managerial work.

We note with satisfaction the licensing of a unit for the manufacture of industrial alcohol in Bihar and it is presumed that the enterprise would be utilising the molasses of the sugar factories. We, however, feel that the efforts during the past fifteen years or so, on research for utilising molasses has not been very serious and that no efforts should be spared to solve the problem of utilising it.

- 38. Jute manufacture in relation to agricultural and industrial employment in the unindustrialised regions.—The high cost of transportation of raw jute to Calcutta tends to depress the price paid to the cultivators and to limit the zone of production. The establishment and development of the capacity of the mills in Bihar would stimulate the cultivation of jute. It is also gathered that there is an appreciable demand for jute twines which may be spun on a small and even on a cottage scale.
- 39. Employment and apprenticeship training of the local people.—We are quoting below the views and recommendations of the Industrial Unemployment Sub-Committee on this subject with our approval of these.
 - "86. (c) The position of employment of the people of the State in the industrial undertakings is far from satisfactory."
 - "87. Before analysing the figures of employment in each category, it may be mentioned at the outset that it has not been possible to verify and check up the information furnished by the employers. However, the information given by the employers may be taken as a working basis to find out the correct position. So far as the managerial personnel are concerned the percentage of the people of the State is only 38.21. The personnel in high technical posts and administrative posts of non-technical nature belong to these categories. It is not possible to indicate the extent of better representation of the local people in the last 5 to 7 years but from all accounts it would appear that there has been some improvement in the position. Among the factors may be mentioned the employment of Labour Weifare Officers under the Biliar Factories Welfare Officers Rules and also under the Mines Rules. Secondly, increase in the number of the engineering graduates and their employment as graduate apprentices have been contributory factors in the process."
 - "88. The percentage of supervisory personnel is not satisfactory. There has been some increase in the employment of engineering graduates as graduate apprentices who start in the lowest rung of the supervisory cadre but from the analysis of the figures of graduate apprentices it would appear that it is far from satisfactory. We have taken into account the percentage of graduate apprentices in the Sindri Fertilizers and Chemicals Private, Ltd., which is very small."
 - "89. The Tata Iron and Steel Co., Ltd., reserved 20 per cent of the vacancies for the graduate apprentices for the people belonging to the State. They have increased the percentage to 33½ per cent and have adopted a principle of imparting additional training to these people in case it is not possible for them to compete with the candidates from outside the State. But it is to be noted that the pace of recruitment of graduate apprentices has not been satisfactory enough for the last 5 years."
 - "90. We have taken note of the fact that the Hindustan Steel, Ltd., had taken a large number of personnel for training in this country and outside. We feel that in any training programme, the State Government should have been more closely associated. It may be taken for granted that these trainecs will also be employed in the 4th Steel Plant to be constructed in the public sector."
 - "91. So far as other concerns are concerned, they do not follow a regular programme of training for engineering graduates. This tends to go against the natural expectation of the engineering graduates in this State. As it would appear from the previous survey, there has been considerable increase in the number of engineering graduates. In absence of regular scheme of apprenticeship, the employers do not employ them in a regular manner. It would be worthwhile to persuade the important employers to introduce regular apprenticeship training in their establishments."

- "92. Apart from the subject already covered by technical institutions in this State, it may be worthwhile to introduce new items of engineering in this State. We may have courses in tele-communication, electronics, etc. This has got to be done with a view to keep abreast of all modern developments in other States."
- "93. Apart from that for the Bokaro Steel Plant, it would be necessary to train personnel well in advance for the Heavy Mechinery Plant and Forge Foundry at Hatia and Oil Refinery at Barauni. We tried to ascertain whether the requirement of technical personnel have been worked out, but we could not get any detailed statement of the requirements of technical personnel in these establishments. It is, therefore, necessary to find out the requirements of personnel and to orient training facilities with a view to meet their requirements."
- "94. So far as the skilled category is concerned, we welcome the introduction of apprenticeship schemes for the tradesmen. The position of trade apprentices in the Sindri Fertilizers and Chemicals Private, Ltd., Tata Iron and Steel Co., Ltd. and Tata Engineering and Locomotive Cempany, Ltd., has considerably improved over the figures of previous years but it is necessary to make up for the leeway in this connection. We feel that in view of the considerable increase in secondary education and training of craftsman, the requirement may be fully met exclusively in this State. We, therefore, feel that the employers here should fill all the vacancies of trade apprentices by the personnel available in this State and not to go to other sources."
- "95. We also welcome the provision of training facilities made by National Coal Development Corporation. Out of the four training centres opened by the National Coal Development Corporation, two are located in this State, one at Giridih and other at Kargali. We feel that with the extension of the training facilities, it would be possible to improve the position in supervisory grade in the coal mines as the position of the people of the State is far from satisfactory."
- "96. We have also to take note of the requirements of unskilled and semi-skilled personnel. The position is not very happy as it would appear that even in these categories, the percentage of the people of other states is very high. It would, therefore, appear that the claims of the people of the State even in these categories have not been fairly treated. The Employment Exchange Organisation is in a position to meet the requirements of supervisory and skilled personnel to a considerable degree and it can also be expected to meet the requirements of all the personnel in the semi-skilled and unskilled eategories."
- "97. Apart from the apprenticeship scheme, we are firmly of the view that it is necessary to provide in-plant training to the eraftsmen."
- Ment we have considered at appropriate places measures for festering relief employment, marginal self-employment, self and family employment as well as employment in wage work and salaried jobs in Government services, public enterprises and private business. Equal or even greater emphasis is necessary on measures to initiate and encourage our youngmen to become small enterprisers. Every such enterpriser is a multiplier point for employment both directly and indirectly. Directly he provides wage work and indirectly his activities foster additional employment to the extent to which his demand for materials stimulates additional production. It is for this reason that at different places we have recommended the necessity of launching of our youngmen in small and cottage industries, in contract work, in commerce and in agricultural preprises as distinct from subsistence farming. The paucity of small enterprise

which create a large volume of employment in aggregate is brought out by the Census figures. There were only about 73 thousand employers operating the non-agricultural sector of the economy of 40 million people in Bihar in 1951 according to the Census even with a liberal meaning given to the term associative activities by the Census authorities. On the other hand, even in the U.S.A., the land of giant enterprises, there were 3.24 million large and small enterprises to operate the economy of about 150 million people in the non-agricultural sector in 1945.

It is for this reason that we have also recommended the setting up of mixed public enterprises with private participation in order to initiate our people into risk-taking, investment and direction of business. Co-operative enterprises should also provide good apprenticeship in promotional and managerial work.

Reverting to the sphere of small enterprises we find that the recent trend of the Khadi and Village Industries Commission has been to work out schemes of small capitalist enterprises for individuals or co-operatives in the rural area. For most of the industries listed for the villages, schemes have been prepared by the Khadi and Village Industries Commission for appreciable capital investments ranging from Rs. 5,000 to over a lakh with very liberal provision of subsidies and loans.

- 41. Variations in the level of industrial employment.—In all the preceding paragraphs, our attention has been devoted to the factors of the growth of the economy and of employment potentials. But we have also noted in a preceding chapter that we have the problems of an under-developed economy, a transitional or growing economy and of a developed economy in certain spheres simultaneously. The Industrial Unemployment Sub-Committee has devoted considerable attention to the last problem relating to the variations in the level of industrial employment. It was in the first instance the mounting figures of unemployment in the typical small and cottage industries of Bihar which led to the formation of this Committee. We are reproducing below the relevant paragraphs (14 to 35) from the Report of the Industrial Unemployment Sub-Committee on this subject.
 - "14. From the figures of employment we find that the level of employment in factories registered under section 2(m)(i) and 2(m)(i) during 1951 reached its peak but there was a steep decline during the year 1952. The figures of employment in the registered factories remained at a more or less steady level from 1953-55. From the year 1955 onwords there has been a g adual increase in the employment of about 3,000 persons every year over the previous year.
 - "15. It seems necessary to clarify that the decline in the number of workers is most marked in the bidi, shellac and mica industries. The level of employment in bidi factories was 22,000 in the year 1951. There was a sharp decline in the level of employment in the year 1952, which remained at a steady level in the years 1953 and 1954. During the year 1955, there was a further decrease in the number of workers and this trend continued in the years 1956 and 1957. Between 1951 and 1957, the decrease in the level of employment was approximately 14,000. It is possible to discern similar trends in the mica industry. The level of employment fell from 18,900 in 1950 to 10,000 in 1954. Since the year 1955, the level of employment has remained steady at 12,000 approximately."
 - "16. The number of workers in shellac factories fell from 7.804 in 1951 to 2.522 in the year 1957. Part of the decrease is to be explained by the location of many shellac factories in the territories transferred to West Bengal with effect from 1st November 1956, but the major part was due to the trade depression."

- "17. It is evident that the adverse variation in the level of employment in the registered factories is more than explained by the decrease in employment in these industries. It may be emphasised that the iower figures of employment in these industries does not represent a net decrease in employment. A large percentage of the decrease is to be attributed to decentralisation of production with a view to escape the provisions of the Factories Act. It is not possible to furnish a statistical measurement of the decrease in employment on this account, but probably 60 to 80 per cent of the decrease may be attributed to this."
- "18. It would appear that from the year 1955, there was gradual increase in the number of workers employed in the registered factories. As regards figures of employment in the registered factories, these require a little explanation. These figures are furnished by the registered factories and are related to the average attendance in the factories. The Chief Inspector of Factories explained that the actual level of employment, viz., the number of workers on roll would be higher at least by 15 per cent than the figures given in the report of the Chief Inspector of Factories. The variation between the level of employment and the figures given by the Chief Inspector of Factories would be larger in continuous process factories than in the factories working only one or two shifts."

"RETRENCHMENT."

- "29. As we have pointed out earlier, there had been a steep decline in the number of registered factories and that of workers employed in such factories during the year 1952 due to slump and trade depression. Table I of Appendix B will show that decline in the number of workers in the non-Government and non-tocal bodies factories registered under section 2(m)(i) of the Factories Act was only to the extent of 5 per cent whereas in the factories registered under section 2(m)(ii), i.e., factories employing 20 or more workers but not using power, the decline was to the extent of 30.5 per cent. The number of workers employed in these factories further went down in 1953 and 1954. Consequently a large number of workers were thrown out of employment and there was a considerable amount of discontent throughout the State. Therefore, the first and foremost thing before this Sub-Committee was to consider the eauses of unemployment in the sector and to suggest ways and means to remedy it."
- "30. The Sub-Committee considered all the aspects of this state of affairs in the industrial sector and came to the conclusion that the first and foremost duty before it is to check the unemployment of those who were still in employment in the industrial sector."
- "31. The Sub-Committee, therefore, found it necessary to recommend measures to see that the persons who were already in employment were not thrown out of employment and were absorbed in alternative jobs in case of unavoidable retrenchment. The Su -Committee in this connection examined the procedure of retrenchment approved by the State Government on the recommendation of the Bihar Central Labour Advisory Board which governs the retrenchment of workers on ground of insufficient business or mechanisation or rationalisation."
- "32. The Sub-Committee, after considering the various aspects of the problem of retrenchment in the State, came to the conclusion that under the existing

conditions, it would be sufficient if the scope of the procedure is further widened to include all kinds of retrenchment with certain modifications to avert retrenchment, as far as practicable, and to secure alternative jobs for the workers who might be retrenched on account of unavoidable reasons."

"33. The Committee accordingly decided to make the following recommendations:—

(a) CLOSURE-

- (i) The scope of the approved procedure of retrenchment should be widened so as to include all retrenchments including those on account of the closure of factories due to economic reasons or any other cause.
- (ii) In case of closure of factories or a section thereof, the employer should submit a proposal with the memorandum of the case to the Commissioner of Labour, Bihar at least six weeks before the intended date of the closure. The Labour Commissioner will make enquiries in accordance with the approved procedure of retrenchment and give his decision which will be binding and final.
- (iii) Every effort should be made during this period to examine the possibility for averting the closure with the assistance of the Government, if necessary. In case it is not possible to avert the closure, permission for retrenchment should be granted on payment of compensation laid down under the Industrial Disputes (Amendment) Act, 1953, or on the basis of agreement between the union and the management.
- (iv) The workers so retrenched should be registered in the nearest Employment Exchange and efforts should be made to secure alternative employments to them.

(b) MECHANISATION-

- (v) In the larger interest of the industry, mechanisation should not be stopped but all possible efforts should be made to effect mechanisation by stages, where possible, and to re-absorb the workers rendered surplus due to mechanisation.
- (vi) An intimation regarding any proposal for mechanisation should be sent to the recognised trade union and to the Labour Commissioner at least six months before the date on which the process of mechanisation is likely to take effect.
- (vii) Efforts should be made during this period to absorb all the workers likely to be rendered surplus due to mechanisation in alternative jobs either in the same plant or in any programme of expansion which may be in hand under the same management, not necessarily at the same place.
- (viii) Permission for retrenchment should be accorded only after the mechanisation has been successfully completed and every effort has been made to absorb the workers rendered surplus in alternative employment.
 - (ix) The names of workers likely to be rendered surplus should be registered in the nearest Employment Exchange and efforts should be made to secure alternative employments for them in other factories or industries before the due date of retrenchment, if possible, or soon after they are actually retrenched.

(x) The workers so retrenched should be paid compensation in accordance with the provisions of the Industrial Disputes (Amendment) Act, 1953, or in accordance with the terms of the agreement that may be reached between the parties.

(c) RATIONALISATION (EXOLUDING MECHANISATION)-

- (xi) The Sub-Committee feel that in the larger interest of production, it would be dangerous to put impediments in the way of rationalisation. In view, however, of the acute employment position, the Sub-Committee would recommend that the process of rationalisation should be so phased that no worker is retrenched on this account.
- (xii) The trade unions should co-operate with the management in the scheme of rationalisation on the understanding that no worker would be retrenched.
- (xiii) The workers rendered surplus due to the process of rationalisation should be absorbed in alternative jobs in the same plant or in any other expansion programme of the management.
- (xiv) Retrenchment of posts should be permissible on account of rationalisation only by the process of natural wastage, i.e., death, discharge, dismissals, etc."
- "34. In making the above recommendations, the Sub-Committee purposely treated the mechanisation of the existing factories and plants with a view to increasing the efficiency and production on a slightly different footing than other kinds of rationalisation. The Sub-Committee did not favour any legislation on the subject at this stage and was of the view that the above recommendations should be given effect to as a tripartite agreement, if possible. These recommendations were accepted in totably the Main Committee. The recommendations of the Committee were adopted in the 13th meeting of the Bihar Central (Standing) Labour Advisory Board held on the 29th and 30th October 1954 with slight modifications. The memorandum placed before the Labour Advisory Board and the decision of the Board are given in Appendix G."
- "35. What is perhaps more significant is that the managements of the Tata Iron and Steel Company, Ltd., and the Indian Steel and Wire Products, Ltd. and the trade unions in their establishments have adopted a mutually acceptable procedure for dealing with the problem of surplus labour. In case any labour saving devices are installed or other forms of rationalisation are resorted to, the number of operatives on a particular item of work is reduced. It has been decided that in bringing about a reduction in the number of operatives, the management will not resort to intensification work. Moreover, the personnel rendered surplus will not be retrenched. They will be transferred to other jobs rendered vacant by the process of natural wastage, viz., retrenchment, resignation, transfer to other plant, etc. We should like to place on record that this arrangement has worked quite satisfactorily in their establishments. A similar arrangement may not work in industries where cost of labour forms a significant percentage of the total cost of production. The Tata Iron and Steel Company, Ltd., and the Indian Steel and Wire Products, Ltd. embarked upon a considerable expansion of their plants five years ago and the personnel rendered surplus were absorbed in their expansion plants. It may not be possible to come across a repetition of such conditions in small units."

- "36. We would welcome an extension of agreements of the type referred to above to many more establishments and industries. When such an arrangement cannot be arrived at, the procedure embodied in the resolution of the State Government should be enforced rigidly."
- "37. There has been a considerable amount of thinking over the vexed question of rationalisation. This problem has assumed considerable significance in the context of relatively abundant labour supply in this country. The resolution of the State Government based upon the recommendation of the Main Committee and the Central Labour Advisory Board has given a correct lead on this question. It is not possible to prohibit rationalisation altogether, but its adverse impact on the economic lives of the workers and the complex of industrial relations has to be mitigated by providing proper safeguards. The Industrial Disputes Act was also amended in 1953 to provide for compensation to the retrenched workers according to the length of service of the workmen concerned."

"38. We, however, append below the number of retrenchments and closures affected since 1954.—

				Retrene	hment.	Closures.		
		Year.		Number of factories affecting retrenchment.	Number of workers retrenched.	Number of closures.	Number of workers affected,	
		1		· 2 ③	113.13	4	5	
1954	• •	• •		475	3,64 1	92	10,772	
1955				59	3,729	32	4,258	
1956		••	:•	41	6,310	15	841	
1957		••	••	29	1,737	25	12,858	
1958	. .	• •		38	2,101	24	4,007	

In spite of all the precautions taken we find that the number of workers affected by retrenchment and closures has been sufficiently high. We are sure these retrenchments must have been affected after following the procedure prescribed by us and the provisions of the Industrial Disputes (Amendment) Act, 1953. Had these stringent measures not been taken the number of workers affected would have been much higher. However, we recommend that the State Government should enforce the aforesaid procedure more vigorously."

INCIDENCE OF UNEMPLOYMENT IN INDUSTRIAL SECTOR.

[&]quot;39. It is difficult to work out the incidence of unemployment in the sector of large-scale units of the organised industry. The main difficulty is that the requirements of personnel in industry cover a wide range from the unskilled workmen to highly qualified engineers. One complicating factor in regard to

the unskilled workmen is the large degree of mobility between industrial employment and agricultural pursuits. This is particularly true of the unskilled workers in the industries like bidi, mica and shellac. Such a trend is also common in employment in the mines. Between the two extremes lie the skilled craftsmen and process operatives, the supervisory grades measured by the last category as well as qualified engineers. In addition, there is a large number of managerial personnel which deals with the technical operation of industry as well as various items of work of an administrative nature. Modern industry requires the services of a large number of accountants, clerks, watch and ward and sanitation staff."

"40. Our rough and ready method to calculate the incidence of unemployment is to analyse the persons borne on the live registers of the Employment Exchange Organisation. Persons with technical qualifications are also borne on the live registers of the Exchanges. The analysis of **p** rooms torne o the live registers of Employment Exchanges is given below:—

DISTRIBUTION OF APPLICANTS ON LIVE REGISTERS OF EMPLOYMENT EXCHANGES IN BIHAR BY BROAD OCCUPATIONAL CATEGORIES AT THE END OF EACH YEAR.

Categories.		1954.	1955.	1956.	1957.	1958.
1	55	2	233	4	5	6
Industrial supervisory		234	160	130	167	345
Skilled and semi-skilled		3,559	3,635	4,926	8,037	7,257
Clerical	• •	9,904	9,034	8,362	10,557	9,664
Educational	•	1,074	942	893	957	612
Personal and Domestic services		1,134	1,605	1,781	2,364	2,139
Unskilled		32,613	36,653	49,669	52,915	57,615
Others ·· ··	••	3,350	2,899	2,359	2,867	2,632
Total	••	51,868	54,928	68,120	77,864	80,26

The term 'industrial employment' has been broadly defined to cover employment in registered factories, mines and quarrics, power generation and transmission and construction activities in registered factories and mines. On the unemployment side, it is not possible to draw a similar broad demarcation. The table given above shows the number of persons who were registered with the various Employment Exchanges in Bihar and were available for employment at the end of each year during the period 1954 to 1958. These persons were available or rather were seeking employment both in The table gives the number of persons on the live industry or elsewhere. according to certain broad categories. The term "industrial superregister visory" covers persons seeking employment and registered for managerial or supervisory posts. It also includes draftsmen and overseers. The term 'others' covers workers in agriculture, railway, transport, shipping, medical, chemical and veterinary services, journalism and other miscellaneous services. Although applicants in all the broad categories shown in the table can be deemed to be equally seeking employment in the industries, for those in

- the "industrial supervisory" and "skilled and semi-skilled" categories, the main chances of employment are in industries, mines, etc., coming under the broad definition of the term 'industrial employment'."
- "41. Although the Employment Exchange figures have their own limitations they can be regarded as indicative of trends. It will be observed from the table that the total number of persons seeking employment has been rising gradually from year to year, and between the years 1954 and 1958 the rise has been of the order of 54.7 per cent. The rise has been in the categories of industrial supervisory personnel, skilled and semi-skilled workers, personal and domestic service workers and unskilled workers. On the other hand, the number of persons seeking employment in 'clerical', "educational" and "others' categories declined during the period 195419—58.
- "42. The term "industrial supervisory" as mentioned earlier, includes draftsmen, overseers, etc. In fact the total of 345 candidates in this category available for employment on the registers of the Employment Exchanges at the end of 1958 included 100 persons registered as draftsmen and 50 persons were those who had freshly completed their training. This figure of 345 also includes about 40 persons who were seeking employment as mechanical foremen/chargemen and nearly 60 persons who were seeking employment as electrical foremen/chargemen."
- "43. As far as the skilled and semi-skilled workers are concerned, the figures show a gradual rise. This is partly due to the increased facilities for technical training in the State. A good number of registrants are passed out technical trainees. The figures at the end of 1957 and 1958, however, show a very abnormal rise. This is chiefly due to the fact that during the year 1957 a very large number of persons, skilled and semi-skilled, had migrated to Jamshedpur from all over the country and had registered with the Employment Exchange, Jamshedpur in hope of getting employment with Kaisers Engineers Overseas Corporation, a firm engaged on the expansion project of Tata Iron and Steel Co., Ltd. With the gradual completion of the work, retrenchment started in Kaisers Engineers Overseas Corporation in the year 1958. Figures of 1958 include partly the retrenched employees of Kaisers Engineers Overseas Corporation. On the whole, however, the trends indicate a slight shift in the occupational pattern of literate persons from white collar jobs to technical occupations, as most of the passed out trainees on the registers of the Employment Exchange are matriculates and a very large number of persons holding qualifications of matriculation and above apply for admission to the training centres."
- "44. Another method is to ascertain the number of closure of units and the number of new factories registered in a particular year. The following figures have been furnished by the Chief Inspector of Factories:—

		Year.	Number of factories at the beginning of the year.	Number of factories registered during the year.	Number of factories removed from the list during the year.	Number of factories at the end of the year.
		1	 2	3	4	5
1954			 3,741	744	278	4,177
1955			 4,177	693	342	4,528
1956			 4,528	757	239	5,046
957			 5,046	59 7	213	5,430
1958			 5,430	629	470	5,589

- "45. It was possible to obtain the figures of lay-offs and retrenchments in the years 1954—58 and the workers involved which are given in Appendix F. These data suffer from the limitation of inadequate coverage. Then, again, the mines have been altogether left out. From an analysis of the data, it would appear that lay-offs are caused mainly due to technical and economic reasons. The same causes lie behind retrenchments and closures varying in their impact from the point of view of the duration of unemployment."
- 42. The small industries group.—Although we have defined the term "Small Industries" in the earlier sections to distinguish them from the large and medium industries on the one hand, and from the cottage industries and handicrafts on the other, the term is also used in the generic sense to cover all the smaller industries and occupations in what is known as the non-organised sector. In this way, it is meant to signify the industrial units which are not required to be registered under the Factories Act. But the official Small Industries Board of the Centre is mainly concerned with that category of industries which it is seeking to organise and foster and which correspond to the class already defined as Small Industries as well as Cottage Industries. In this way, the category would include the mechanised, and even some nonmechanised cottage industries. The practical classification, therefore, of the State Department of Industries for fostering them under the designation of Small and Cottage Industries is quite logical. Even then there are considerable difficulties in applying this classification rigidly in actual practice on account firstly, of the large number of border-line cases and secondly, because there are varying degrees of competitive and complementary relationships between them. Further, the line of division between small and mechanised cottage industries is highly artificial and we find that most of the more pushing light engineering units, though formally coming under the category of small enterprises, deserve and are getting all the facilities meant for the cottage industries. The Planning Commission has solved the problem of classification by its realistic method of placing them in a number of separate categories for each of which there is a Central Government organisation for the purpose of fostering them even though the actual administration of the schemes is a responsibility of the State Government. The co-ordinating boards are the following which were formed out of the original All-India Cottage Industries Board of 1948 :-
 - (i) The All-India Khadi and Village Industries Commission.
 - (ii) The All-India Handloom Board.
 - (iii) The All-India Handierafts Board.
 - (iv) The Coir Board.
 - (v) The Central Silk Board.
 - (vi) The All-India Small-scale Industries Board.

Besides these Boards, there are other bodies to which reference would be made later on.

- 43. A CLASSIFICATION FROM THE EMPLOYMENT POINT OF VIEW.
- 43.1. The administrative and employment points of view.—While the classification given above emanates from the administrative point of view of the Central Government and the Planning Commission, another classification from the point of view of employment planning may be more useful and is indicated.

- 43.2. Small-scale and cottage industries.—The meaning of small-scale industries in the sense of the Planning Commission and of the Small Scale Industries Board is more liberal than in Europe, U.S.A. and even Japan and includes many enterprises classed as hand trades in the latter countries. Hence a very large number of cottage industries are included in the schemes of protection and development. However, the constituents of this category may attain a fairly high organisational and technological level. They may cover consumer as well as producer goods. From the sphere of the activities of the Small-scale Industries Board we see that the category covers a wide variety of light engineering goods and components for assembly into complete producer and consumer goods. It covers sports goods, glassware, footwear and leather goods, tanning, wood working cutlery, cycle and sewing machine parts, locks, steel wire products, mathematical instruments, complete small gadgets or parts of railway equipments, small electrical goods etc. The most important constituents may turn out to be those which are ancillary to a number of large and medium industries. The larger and more organised units in the class of cottage industries often attain the level of small industries n the stricter sense of the term by their growth.
- 43.3. Handicrafts and their survival value.—In the terminology of the Planning Commission, the term has got a restricted, though not a rigid meaning. It means the industries practised by skilled independent craftsmen producing artistic goods. Besides the existing list of embroidery, silk and wool weaving and printing of artistic work, metal and wood enamel working, new types of products may come into this class like the small precision tools, instruments, parts of clocks and watches, optical goods, etc., in future. There is a wide latitude for the coverage of this category in the different states according to the local conditions and traditions. It is, however, desirable to explain the scope of the handicrafts as understood in Europe. Historically, the master crastsmen and the family crasts were eliminated by the coming of the steam engine and the rise of the factories. But while technical progress has eliminated many of the handicrafts, it has brought others into existence which have been able to grow out of or to establish symbiosis with modern industries. Thus electricity has re-established many trades which were lost owing to the steam engine. Large industries have created scope for ancillary hand trades. In this way electricity, radio, bicycle, sewing machine, precision instruments, optical industries, watch making, etc., create scope for handicrafts calling for a high degree manual skill. The automobile industry Mechanised agriculture and the new techniques of building is another example. created a new class of handicrafts and repairers. A recent review of the the progress of the handicrafts in Western Europe showed that has created new scope for handicrafts in food processing, catering, repairing of agricultural leather and wood working, and textile. household appliances, assembly, clock and watch reparing, lock-smithy, laundry, hair dressing, dyeing and cleaning, servicing, running small workshops and a host of other occupations.

Our very important conclusion, therefore, is that the handicrafts in the widest sense of including servicing of certain types need not be looked upon as mere relief and charity industries and every effort should be made to improve their survival capacity to enable them to co-exist with the larger units as an integral part of the economy.

43.4. Another special category of urban handicrafts.—In the last paragraph we have considered such handicrafts as may grow up in response to the normal demand of the economy and may be able to co-exist with the larger industries on their own merit. But there is another class of urban handicrafts which may have to be planned and specially fostered to provide employment opportunities as the urban centres and industrial townships grow up. What happens is that in the urban areas in general and in the industrial townships in particular, there is always a fringe or reserve of

labour force besides what is employed. Secondly, as permanent urban and industrial population grows up, it becomes desirable and also possible to create and provide employment for women and girls. In the W st, many big industrial centres took up the development of complementary lighter industries because the main industries were of the heavy type suitable for men only. Such complementary industries may indirectly tend to reduce the load of the living wage on the main industries.

Again, in the industrial as well as non-industrial towns, the contract type of work at home may grow up or may be fostered. This class of work, while very useful in relieving unemployment and poverty, calls for special measures because it is vulnerable to exploitation on account of the workers being scattered and not able to organise themselves for bargaining purposes.

- 43.5. Industries integrated to the rural economy.—There are a number of industries which are integrated to the rural economy by their very nature. They are being looked after by the statutory Khadi and Village Industries Board, by the non-official Khadi and Gramodyog Sangh, by the Department of Industries (Handicrafts) or by the Department of Agriculture. Nevertheless, they constitute a class by themselves.
- 43.6. Relief and semi-relief occupations.—It is important from the point of view of policy-framing to draw a distinction between such small industries and handicrafts as can acquire a survival value on their strength and those which have got an employment value during our transitional stage of the economy and are likely to be eliminated as the scope for more profitable wage work expands. This category and its logic has been explained in the subsequent sections.

44. SELT-EMPLOYMENT.

The sphere of self-employment cuts across all the four agricultural classes and most of the 10 divisions and 88 subdivisions of the non-agricultural livelihood classes. However, we are preferring to discuss it here just as a matter of convenience.

44.1. Meaning and scope of the term self-employment.—The most striking feature of our occupational statistics is the predominance of self-employment. This is a feature of all the backward economies of the world before the coming of an industrial revolution when the superior productivity and wage paying capacity of mechanised industries replace the small family enterprise, small workshop and handicrafts by large factories. Agriculture, however, continues to be predominantly a sector of self-employment even in the advanced countries unless the state has eliminated the independent agriculturists as in Russia and China. The essence of self-employment is that the worker is his own master and decision-taking authority in every respect. He has to find his own capital, to plan the investment of his resources and to take risks. He is his own manager and buying and selling agent. He is free to associate with others for common objects or to work completely on his own account. Thus the farmer working with his family members, the small craftsmen, the shop-keeper, the hawker, a person rendering service like a washerman or a barber, an individual engaged in any of the learned professions, etc., all belong to this category of self-employed persons. In the context in which we are examining this subject we have to consider the owners of very small enterprises employing one or two helpers like the master craftsmen of the days before the Industrial Revolution as self-employed. The Census authorities included a selfemployed person who hired even one wage-earner in the category of associative enterprises and counted him as an employer. But even this extended interpretation and application of the term employer leaves self-employment as the dominant features of our economy. The statistics showing the ratio of the independent workers to the total number of occupied persons in each class, which has been given in this chapter, brings out the strength of this generalisation.

- 44.2. Place and significance of self-employment.—The significance of this category of the economically active population from the point of view of the terms of reference of this Committee may now be explained. Firstly, it is clear that in a backward cconomy or in the first stages of economic growth, the organised industries in the public or the private sector along with the other avenues of service would be unable to absorb the entire labour force coming on the market. Secondly, in a developing economy there is a growing stream of persons coming on the labour market and seeking work as salary and wage earners and the state or the organised industries would find it impossible to provide work for all of them. Thirdly, from an examination of these trends, it is clear that in a growing economy the self-employed class tends to become residual in character; consisting mainly of those who are not able to find more profitable wage work. Hence most of the occupations of the self-employed persons are such as, by their very nature, cannot be absorbed by the mechanised or organised industries. It is on account of this residual character that a large number of industries and occupations in the self-employing category stand in need of being protected and patronised by the state in the transitional stages of a growing economy like ours. It is for this reason that measures for fostering self-employment are linked with the essential features of what has been classed, later on in this chapter, as relief employment. These features, along with the social and economic values of self-employment to be described presently, emphasise the necessity of a clear policy of the state towards self-employment.
- 44.3. But self-employing occupations are not necessarily like relief employment.—Before we bring out the nature and necessity of relief employments, it is necessary to explain that self-employment is not necessarily relief employment in every case and many self-employing occupations can stand on their own legs without any subsidy or protection and will have their own survival value as seen in sub-section 43.3. There are certain occupations and activities in which the skill of hand, individual judgment and the test of the human eye and touch cannot be replaced by machinery. Or the occupation may take advantage of and utilise the modern economic and s cial overheads for survival, as the Japanese and the Swiss self-employing family occupations are doing. Moreover, there are many vocations in which the services are rendered in person and not through production.

45. THE SCOPE FOR SELF-EMPLOYMENT IN THE NON-AGRICULTURAL SECT(R.

In the chapter dealing with intensive farming the prospects of expanding self-employment in the agricultural sector have been examined. It has been shown that, pov ded the horse would only be prepared to drink, there are plenty of troughs and plenty of water in each, to which he can be led. It is quite another question if he refused to drin. In this chapter we are mainly concerned with the scope for self-employment, on its own merit or by means of relief measures, in the secondary sector.

45.1. Scope for the expansion of self-employment with the normal growth of the economy. Its indirect effect on unemployment relief in the agricultural sector.—Our calculations show that in 1951, out of 127.1 lakh of the economically active people, 81 lakh were self-employed in agriculture and 28.6 lakh belonged to the intermediate status of landless workers which is the reservoir out of which a large number of the self-employed persons in the rural as well as urban non-agricultural sector also stream out. It is our purpose to show how this stream can be stimulated and thus made to lighten the burden of rural and urban unemployment. This can be done by encouraging, or at least not imposing minor administrative difficulties for these humble enterprisers. It is believed that an increase in the per capita income of the people as a whole, the growth of urban population and the trend of diversification of the economy would induce an appreciable increase in the volume of self-employment in the non-agricultural sector. The scope can be illustrated by citing some comparative

figures. Thus taking only one Division of the Census statistics of non-gricultural occupations, we find that whereas the percentage of the economically active persons in commerce and transport in West Bengal was 9.3 and 8.0, in Bombay 7.2 and 2.2, in Bihar it was only 3.4 and 0.7 respectively. Looking into further details we find, for example, that there was only one fisherman serving 538 families in rural and 180 in urban areas, one tailor serving 55 families in urban and 408 families in rural areas, one road transport operator for 25 families in urban and 513 families in rular areas, one washerman for 84 families in urban and 311 families in rural areas. Similar ratios may be worked out for other specific trades and occupations. It is clear that any progress which is registered by the economy of the country would tend to expand the scope for self-employment by stimulating the demand for the services rendered by them.

- 45.2. The necessity of a positive policy for stimulating self-employment in the nonagricultural sector.—The State has a highly liberal policy for the welfare of the factory workers. Efforts are being intensified to help the agricultural labourers. The small anterprises in fabrication are also receiving the required stimulus and support through various measures of financial help, technical advice and guidance and facilities for marketing. It is urged that the number of the self-employed persons in the other Divisions of the occupational tables, and the scope for further expansion in them call for a positive policy of patronising all these occupations not embraced within the scheme of aids of different kinds from the State. Their soc al values have already been explained. It is recommended that steps may be taken to see that those occunations which are not so far covered by the measures of aid or patronage of the State, receive due consideration. Even apart from any positive measure, there is quite a lot to be done to free them from many administrative disabilities imposed legaly or illegally on them. Details about some of these disabilities have been collected by the Committee which show that much useful work for helping them can be undertaken without any additional expenditure by the State. The impact of the actual administration of the sales tax, of the Shops and Establishments Act, of various measures for hygienic control, etc., deserve attention. One great weakness of the small self-employed person is his extreme individualism and it is expected that the spirit of associative action may be fostered among them by State efforts. They may be freed from petty vexations by the administration in other ways. All these measures would be compatible with any measures for the control of the activities in the interest of the society and the consumer, and may even help the small self-employed. For example, a constructive and sympathetic enforcement of the hygienic measures on the small hotels, restaurants and eating houses is more likely to increase their popularity and business than to hinder them. The roadside vendors and the itinerant trademen may be guidedi nto plying their trade with a proper civic sense by not blocking the foot-paths or roads. The green-grocers who start their work of transporting their ware in the early hours of the morning may be helped by the provision of a larger number of market places. There are numerous other lines on which selfemployment can be stimulated, the details of which may be looked into.
- 46. The difficulties of mass scale relief employment measures in a democracy.—The type of mass scale employment measures which we have envisaged in another chapter would work all right if carried on as normal economic activities on market rates of wages. But difficulties may be encountered to that sector of it to which we may try to impart the character of relief work. And yet the basic objective of the scheme would not be approached unless they are launched on a mass scale of relief work or as mass social service activities. The difference lies in the fact that in a total tarian country with a single party, an all-pervading cadre of party men to function as leaders, guides and foremen, and with no plural voices to create doubts, uncertainties and differences in the attitude of the unthinking masses towards plans and schemes of the state and with the highly developed technique for brain-washing, mass enthusiasm

can be whipped up more effectively. It can be harnessed and sustained for operating over a fairly long period beyond the spurt of the initial impulsive enthusiasm. Hence very spectacular as well as substantial achievements can be attained by them, the like of which may not be easy in a democratic society. At the same time, the society and the Government of an under-developed country are vulnerable to destructive propaganda on account of mass unemployment. It is for serious consideration, therefore, if we can find a democratic way out of this difficult situation. It is suggested that two types of relief employment schemes, as explained below, may be considered because we are already familiar with them in a limited way. They have already been referred to from different points of view in the preceding sections and in the last chapter.

47. RELIEF EMPLOYMENT MEASURES.

- 47.1. Offer of mass employment at subsistence rates of remuneration.—We are familiar in India with the offer of relief employment on a mass scale as made under the provisions of the Famine Code for actual relief and for testing the actual incidence of distress. It has, of course, got certain flaws because only one kind of relief work in shape of hard manual labour is provided. But the principle underlying the system is clear. It is on these lines and in view of the limitations of a democratic society in harnessing the masses by totalitarian methods that the proposals for standing schemes and standing offers of employment at subsistence allowance have been made in another chapter in connection with the schemes of mass employment. It may be possible to take simultaneous steps for whipping up enthusiasm for them by publicity about their social value and the spirit of service in which the activities and schemes are to be taken up. The extent of the initial as well as the ultimate success would be determined by the degree of success in creating enthusiasm and sustaining it for the work. We have explained at another place how this system has already been adopted for the Intensive Area Scheme by the Khadi and Village Industries Commission.
- 47.2. Subsidised decentralised occupations.—Relief employment suitable for individuals, families or small associations may be provided by subsidising certain occupations which might not otherwise survive if left to fend for themselves in the open market. The subsidies granted to the charkha weavers during the near famine conditions a few years ago, or the systematic subsidy to the products of the handloom industry or other village industries, are examples. It may be possible that in certain cases the subsidies operate like a protective tariff and the products are able to stand on their own legs by attaining a higher level of productivity and quality and by organising superior marketing facilities. On the other hand, it may be possible that the occupations have got to be fostered as a means of relief employment with the knowledge that the measure is a transitional one to tide over the existing employment situation and that ultimately they would die a natural death as the economy of the country attains diversification and a higher level of productivity providing higher earnings elsewhere. Thus, it is doubtful whether, if our economic growth is satisfactory and the family planning publicity is successful, even Ambar Charkha and much of the staple products of the handloom below the highly artistic ones would survive in the long run.

48. EMPLOYMENT VALUE OF THE MINOR INDUSTRIES AND HANDICRAFTS.

If we interpret minor industries and handicrafts broadly to include servicing as well, we shall find that their employment value in the aggregate is higher than that of the large and medium industries. They represent the multiplier effects of the growth of the large and medium industries of which they are ancillaries or derivatives or are based on the produce of agriculture and other land uses. The statistics of employment from 1950 to 1957 in respect of factories defined in sections 2(m)(i), 2(m)(i) and 85 of the 39 Lab.—45.

Factories Act, 1948 have already been examined. The information on minor industries we could collect or infer is not satisfactory. We learn from other sources that the Central Government authorities claim to have increased the production in the small industries by 200 to 300 per cent during the last three or four years due to the efforts of the different Boards responsible for their development. But the returns under the Factories Act do not indicate any such trend from the figures available up to 1957. It is, therefore, concluded that the improvements have taken place in the unregistered units. We have, however, sought to assess the place of the smaller industries from the figures of the Census table of 1951, leaving the question of progress since then unsolved. The only dependable figures of employment in recent years are those relating to the handlooms and those available for the activities of the Khadi and Village Industries Board which have been given in the appropriate places. In the following sub-sections we are giving an account of the employment in the small industries and handicrafts as they existed in 1951 according to the Census. Wherever parallel figures are available, we have referred to them in the returns of the factories. In the Census figures, the volume of employment in the small units are those given under the heading of independent workers along with the major part of those entered under employers and employees unless a cross reference to the factory returns shows the existence of large units as in the case of iron and steel, sugar, cement, etc.

- 48.1. Poultry farming, silk-worm rearing, lac growing, bee-keeping, etc.—Sub-division 0.2 of the Census table dealing with employment in poultry farming, silk-worm rearing, lac growing, bee-keeping, etc., shows the total employment to be only 4.70 thousand, 340 thousand being self-employed. This small total figure is due to the fact that all these are part-time activities in Bihar (also in India) whereas the instructions to the enumerators of the Census were to enter in this class only those whose principal source of livelihood was from these occupations.
- 48.2. Salt-petre extraction.—Sub-division 1.7 gives the figure of those engaged in salt-petre extraction. The total number of persons engaged was 603 only and they were mostly independent workers. We do not know the future survival capacity of the trade. But we know that it is a relief occupation of a few families of Nunias who are not able to get employment elsewhere during the summer months.
- 48.3. Milling of foodgrains.—Sul-division 2.1 relates to the milling of foodgrains (cereals and pulses) including milling and pounding of rice, grinding flour, splitting pulses and making chura. The factory returns give the figures of the milling business and we have seen that the number of workers increased from 5 thousand to 10.5 thousand between 1950—57. But the Census figure shows that it is typically an industry of the rural self-employed workers. Moreover, we know that in the villages it is mainly a seasonal and part-time work. Hence the figures are small.
- 48.4. Sugar industry.—Sub-division 2.3. relates to the sugar industry. The Census figure of total employment in the mills and in self-employment is unreliable as making it only about 6,700. But the factories returns showed the employment in the large mills alone to have been 28 thousand in 1950 and 22 thousand in 1957. The number of independent workers according to the Census was 1,887 in 1951. The number should by now have increased in small units owing to the palm-gur activities of the Khadi and Village Industries Board.
- 48.5. Beverages.—Sub-division 2.4 relates to beverages and includes toddy tappers. The number of self-employed persons was 5,479.
- 48.6. Tobacco, including bidi industry.—Sul-division 2.5 is concerned with tobacco. The bidi industry is one of largest employers and we have seen how the number of

employees has fallen steadily from about 17 thousand in 1950 to about 9 thousand in 1957. It is possible that most of them have become self-employed or employed in smaller unregistered establishments. In the Census table, too, the number of self-employed was 15,302.

- 48.7. Cotton Textile Industry.—Sub-division 2.6 covers cotton textiles. The Census table gives total employment in 1951 to have been 30,486, of whom 24,978 were self-employed. The factories returns of the year 1950 show the employment in the cotton mills to have been 1,209. Hence the majority of the workers can be deduced to have been the employees of the small master weavers. We know that the handloom industry, which was in distress at the time of the Census, has made great recovery since then as a result of the activities of the Central Government, the State Government and the Co-operatives. But the number of workers might or might not have increased and the results might be a fuller employment for those already in the trade as has been the objective of the administration and of the co-operatives.
- 48.8. Wearing Apparel Industry.—Sub-division 2.7 deals with wearing apparel. Total employment in 1951 was of 27,974 persons of whom 20,826 were self-employed and the rest evidently employed in small establishments or under master workers. The factories returns give the picture of a very poor show of this State in the knitting and hosiery business. We also know that the trade in ready-made garments in goods imported from other states has been making such a headway that we have made a specific recommendation on the subject for creating employment avenues in this line in Bihar.
- 48.9. Jute, wool and other fibre industry.—Sub-division 2.8 of the Census is a jumble of jute, wool, linseed, silk, flax, hair, hemp and other trades and not much of useful information can be derived from it. The total employment in all of them including that in the big jute mills was a little over 6,000. We can deduce nothing useful from the factories returns.
- 48.10. Leather, leather products and footwear.—Subdivision 2.9 is concerned with leather, leather products and footwear. The total employment was 14,936 including 11,023 self-employed. The only large-scale footwear factory in the State employs about 700 persons. So the rest must be employed in small units.
- 48.11. Manufacture of unclassified metal products.—Sub-division 3.0 relates to the manufacture of unclassified metal products and includes the village blacksmiths, workers in brass, makers of implements, etc. The total number of those engaged as employers, employees and self-employed was 23,498 (with 18,074 as self-employed). Evidently there are no large units except the one known as the Agrico. (Agricultural Implements Company of Tata Iron and Steel Company, Ltd.). Small engineering units were rare. It is expected that some progress has been initiated during the last two years on a cottage or small scale.
- 48.12. Manufacture of transport equipments.—Sub division 3.3 relates to employment in the manufacture of transport equipment including bullock carts, power vehicles and railway coaches and wagons. The total of all categories makes a poor show of 5,327 including 1,139 self-employed. But we visualise a large scope for the expansion of employment with the growth of demand for transportation which must accompany increase in production in the primary and secondary sectors and the growth of commerce.
- 48.13. Manufacture of machinery.—Sub-division 3.5 relates to employment in the manufacture of machinery. Both the Census table (total employment 187) and the factories returns show a complete lack of either large, medium or small units in the

- past. We expect considerable advance in this line in ancillary and derived units as the basic, large and medium industries develop and minor industries also manufacture as well as consume machinery and appliances.
 - 48.14. Pharmaceutical and other similar products.—Sub-divisions 3.7 and 3.8 relating to pharmaceuticals and other similar products make a poor show and this is in conformity with the figures of the factories returns.
 - 48.15. Bricks, tiles and other structural clay industries.—Subdivision 4.2 relates to bricks, tiles and other structural clay industries. The factories returns give the figure of about 7,000 and the Census, which includes all self-employed persons places employment at 10,379. The figures might actually be much higher in view of the large and growing volume of constructional activities.
 - 48.16. Miscellaneous class of earthenware, pottery, bangles, beads, etc.—Sub-division 4.4 covers a miscellaneous class of earthenware, china clay pottery, bangles, beads, etc. We are not able to draw any useful conclusions. The registered units give the figure of employment of only about 50. We, however, presume some increase in employment in this category.
 - 48.17. Wood work, furniture and fixtures.—Wood work, furniture and fixtures are covered by Sub-divisions 4.6 and 4.7. The combined employment of all categories was 38,364 in 1951. The figures in the registered factories between 1950 and 1957 are insignificant ranging around 800 to 700. Here, too, we do not consider these figures to be quite reliable in view of the obvious increase in constructional activities and consumer demand.
 - 49. The handicaps of (a) the small and cottage industries and of (b) the handicrafts.—
 To a certain extent the handicaps of these two categories of industries are common.
 But there are other handicaps specially affecting the handicrafts. Finally there are difficulties affecting specifically the individual industries and occupations of both these categories. We shall try to look into the first two groups of difficulties first. The handicaps of the individual industries or occupations would be referred to when we deal them separately.

The handicaps affecting all the small, cottage and handicrafts industries are the following:—

- (i) Antiquated technique of work and designs.
- (ii) Absence of or aversion to the use of mechanical appliances. The Khadi and
 Village Industries Commission has been trying to evolve and popularise them.
- (iii) Lack of capital resources.
- (iv) Want of standardisation of specifications and of quality.
- (v) Want of a trade-mark or a name for the wider market.
- (vi) Want of marketing facilities.
- (vii) Competition of the more organised large units.
- (viii) Want of co-ordination between the main and the small ancillary industries.
 - (ix) Difficulties about raw materials and power supply.
 - (x) A number of other difficulties specially felt in our State.
- (xi) The special difficulties of the artistic handicrafts relate to (a) the adoption of designs to changing consumer taste, (b) the absence of marketing facilities and (c) the want of knowledge and of training facilities.

We shall now be dealing with these difficulties serially and also examine thereafter the working of a number of important agencies like the State Khadi and Village Industries Board, the Small Industries Service Institute, the State Directorate of Industries, etc., in helping the smaller industries and crafts.

50. Overcoming antiquated methods of work by research, training and guidance.— The small industries are serviced by such institutions as the Textile Research Institute, Poona, the Institute of Leather Technology, Madras and the Bengal Ceramic Institute. Fundamental research is being done in the various National Laboratories. There are also some institutions specialising in the village industry problems, e.g., the Handmade Paper Research Laboratory and the Village Industries Experimental Workshop, both at Poona. While fundamental research is necessary for the progress of the larger industries, it is the operational research which is of importance for the smaller industries and handicrafts. Research of the operational type is necessary for increasing the efficiency and survival value of the small industries. It is satisfactory that considerable advances have already been made by the improvements both in (a) appliances and (b) the methods or processes. mong the notable achievements are the Wardha Ghani, the Wardha Chakki, the Ambar Charkha, improved pulp beater for handniade paper, the cow-dung gas plant, an improved handcarder, etc. Some of the important improvements in the processes have achieved a higher extraction of oil from the Kolhus, improved the quality of village tanning, enabled bomboo splints to be used for the manufacture of matches, etc.

While training and guidance for the small and cottage industries have necessarily got to be done on more formal lines, the various bodies concerned with the village industries have arranged for the training of the operators and artisans in their own production-cum-training centres. Moreover, almost all the Community Development Centres have been provided with the personnel to impart training in certain crafts according to the needs of the locality. The Small Industries Service Institute and the Directorate of Industries provide for training in the Industrial Estates and also arrange for the training of those already in a trade and of new aspirants in other centres.

51. Use of mechanical appliances, improved tools and machinery.—The craftsmen were eliminated by the development of power and machinery. We have noted that the coming of electricity has removed the limitation imposed by the steam-engine. Similarly, new types of hand operated or small power operated machinery have been bringing back the craftsmen to their own. The introduction of the Ambar Charkha is an appropriate move in this direction. We expect that the prototype centres at Okhla and Rajkot would invent new types of hand or small electrically operated machinery for improving the survival value of handicrafts and cottage industries.

Great advances are expected in future in the smaller industries by the introduction of small machinery. So far as we have been able to ascertain, we are in a position to recommend steps for the introduction of small power or hand machine, for increasing the survival value of the following handicrafts:—

- (i) Rope-making for local consumption and using fibres not suitable for exportable manufacturers.
- (ii) Timber sawing—This would rather help, and not compete with, the work of the carpenters.
- (iii) Steel trunks and other furniture,
- (iv) Tile-making.
- (v) Brick-making on large scale for supply to large constructional works.
- (vi) Manufacture of footwear.

- (vii) Spinning of jute twines.
- (viii) Processing of linseed fibre.
 - (ix) Small pulping appliance for hand-made paper.
 - (x) Improved Kolhu.
 - (xi) Assam Dhenki.
- (xii) Blowers, lathes and other appliances for enabling the traditional blacksmiths to service and maintain the new agricultural appliances.
 - 52. FINANCIAL ASSISTANCE TO SMALL AND COTTAGE INDUSTRIES.
- 52.1. The institutions for financial assistance.—Financial assistance is available to small-scale and cottage industries from the following sources:—
 - (i) Directly from the State Government under the Bihar State Aid to Industries Act, 1956.
 - (ii) Bihar State Financial Corporation.
 - (iii) National Small Industries Corporation of Government of India.
 - (iv) Pilot Project of State Bank of India.
- 52.2. The Bihar State Aid to the Industries Act.—The terms and conditions for grant of State aid under the Bihar State Aid to Industries Act, 1956 have been considerably liberalised. A small industrialist can get a loan up to Rs. 1,000 on his personal security. Loans up to Rs. 5,000 can be granted on the personal security of one or more sureties. For loans over Rs. 5,000 security in shape of land, building, etc., is required. Financial assistance can be given to co-operative societies without any security up to 10 times the paid up share capital plus reserve fund, if any.

In order that the small-scale and cottage industries may be able to get financial assistance easily and expeditiously, power to grant loans under the Bihar State Aid to Industries Act has been considerably decentralised. Power has been delegated to Subdivisional Officers and Project Executive Officers to grant State aid up to Rs. 5,000, to Collectors up to Rs. 10,000 and to Director of Industries and Additional Director of Industries, Bihar up to Rs. 20,000. Power to grant subsidies has also been delegated to a limited extent.

Under the Bihar State Aid to Industries Act either cash loan can be granted or machinery can be supplied under hire purchase terms. In the latter case the hirer has to make a deposit of 20 per cent of the price of the machines supplied and pays the balance in annual instalments.

The amount advanced as State aid so far during the Second Five-Year Plan period is as follows:—

1956-57. 1957-58. 1958-59. Rs. Rs. Rs. 16,32,422 29,34,819 37,36,797

52.3. Bihar State Financial Corporation.—The State Financial Corporation has increased its resources for the grant of loans to industries. The Corporation grants loan to small-scale industries also. The system of utilising the State Financial Corporation for grant of loans under the Bihar State Aid to Industries Act has also been introduced on an experimental basis for a limited area.

- 52.4. The National Small Industries Corporation.—The National Small Industries Corporation set up by the Government of India also supplies machinery on hire purchase terms to small-scale industries. The hirer is required to deposit 20 per cent of the price of a machine required and pays the balance in annual instalments.
- 52.5. Co-operative Banking Institutions.—The Co-operative system of making advances has been developed further.
- 52.6. The State Bank of India.—The State Bank of India has started a pilot project for the grant of short-term loans to small-scale industries in Patna urban area. So far the State Bank has sanctioned loans to 10 units, the amount being Rs. 2,06,000.

This pilot scheme will be shortly extended to the Ranchi and Dhanbad branches of the State Bank. Gradually all the branches of the State Bank will provide this facility of short-term credit.

- 52.7. Financial assistance to the handicrafts.—While the entrepreneurs in the small and cottage industries require capital for the purchase of machinery and also for stores, the craftsmen generally require capital for raw materials and have often got to borrow because their products are not sold out as soon as finished. Loans for the small master craftsmen or self-employed persons are available under the State Aid to Industries act. But the Government have been rightly organising the craftsmen into multipurpose co-operatives for the purpose of marketing, quality control as well as supply of loas.
- 53. The methods of solving the marketing difficulties.—The smaller industries cannot survive by catering to the local customers alone. For the purpose of survival and of continuous employment, the market has got to be widened. Moreover, the introduction of improved mechanical appliances would be possible only if the market for the products is widened.

A serious handicap facing development of small-scale industries is the lack of confidence among the consumers regarding quality of goods produced by the small scale units and cottage industries. While the resources of the large-scale industries are great in respect of providing facilities for quality testing and its control in different stages of production and for satisfying their consumers technically as well as by way of publicity and propaganda, the resources of individual small-scale units are obviously too poor to afford any suitable measures for satisfying the consumers about the quality of their products, let alone affording expenses of publicity and propaganda.

Among the factors that constitute the quality of products, standardisation is an important element that has become the inevitable requirement to be fulfilled by the industries in the present day of competition from mass production and of assembly and replaceable parts. The standardisation of products and reduction of varieties lead to considerable economy in the cost of production. Realising this fundamental necessity of industries the Indian Standards Institute has been drawing up standards for various industries. Large-scale industries are closely associated with this drawing up of standards because of which they keep themselves better informed of various standards being adopted and adjust themselves quickly to the requirements of the market in the light of such standards. Collection of such information and their dissemination among small-scale units for timely adoption is necessary for the survival of small-scale units in the same sector.

Factors facing the quality control of industrial goods can be broadly divided into two groups. One relates to purely technological aspect and the other relates to the

question of drawing up of standards, enforcing the standards, and the publicity and propaganda of the quality, which can be deemed as relating to "marketing of products". The technological factor facing the quality of goods in small-scale industries would be taken care of by the Technical Assistance Schemes and schemes for hire purchase of machinery that have been sponsored by the State as well as the Central Government. However, there is as yet no organisation in the State which can provide material assistance towards "marketing of products". The activity of the "Jansewak" marking is still very limited. Scheme for quality marking is necessary and they should provide a scientific basis and guidance to the marketing of products and collaboration with such organisations as are already engaged in marketing. In effect the quality marking organisation should co-ordinate the activities of technical assistance as well as of those for the marketing of products.

Quality marking of the products of small-scale sector should facilitate purchase of these by the Government. Branding under the quality marking scheme will give the needed confidence to the consumer at large to purchase their products and thereby create demand for products which are quality marked. This should also lead gradually to further improvement in the quality so as to enable the small-scale industry to offer its products in the export market. Fostering of quality consciousness in small-scale entrepreneur would lead to a better sense of responsibility that will be necessary to maintain the standard which should ultimately secure him and his industry stability of demand.

The State Government are initiating a scheme for quality marking of the products of the small-scale industries with the following objectives in view:—

- (a) To prescribe standards and specifications for the goods for which these have not been drawn up by the Indian Standards Institute.
- (b) To serve as agency of the Indian Standards Institute for enforcement of their certification marks.
- (c) To collect information relating to the standard specifications and desirability of enforcing them in groups of factories belonging to a particular industry or in individual factory units.
- (d) On the basis of systematic investigation in individual units or group of factories, to persuade the small-scale manufacturers to adopt the quality mark of the Directorate of Industries, Bihar.
- (e) To enforce quality marking by testing inspection and such other measures as may be necessary from time to time.
- (f) To arrange publicity of quality marked products.
- (g) To co-ordinate the activities of various Government assistance for small-scale industries.

In the first phase of the scheme of quality marking of the products the following industries are being taken up:—

- (i) Silk and tassar industry.
- (ii) Handloom fabrics.
- (iii) Small tools and cutlery industries.

Initially a quality marking depot will be set up at Bhagalpur for the silk and tassar industry while depots will be set up at Ranchi, Biharsharif and Muzaffarpur for textile fabrics. In the case of small tools and cutlery industry, one depot at Hazaribagh is being set up. These depots will be manned by an expert assisted by field staff to quality mark the products and ensure maintenance of quality.

In the second phase the scheme will be extended to-

- (i) Bicycle and bicycle components.
- (ii) Sewing machines and its components.
- (iii) Locks.
- (iv) Electrical motors and other electrical appliances.

One other general aspect we should like to mention is the question of marketing. The basic problem is to take to the cottage or small-scale producer, the information about what the distant consumers want, to enable him to produce these goods, and then to ensure that the goods reach the consumers and the producer gets a fair return. We do not consider that over the varied field of cottage and small-scale industries, the existing distribution channels can or should be replaced by State-owned emporia. No doubt, Government will wish to encourage co-operative marketing wherever possible. A certain number of urban emporia have, however, to be established by the State Government to be run as State-owned or as co-operative organisations. We hope that such a State-sponsored marketing system operating within the existing distributive system will accelerate the growth of small-scale industries.

Efforts are also being made through the co-operatives to finance the marketing operations so that the small manufacturers and craftsmen are able to recover at least part of their outlay as soon as they are able to deliver the goods. But the system barely touches even the fringe of the problem that the small men cannot afford to hold their supply for long.

54. Protection of the small industries and handicrafts from competition of the large industries.—Protection to the small enterprises has been extended from the competition of the large units both for the purpose of enabling the latter to increase their competitive power as well as to protect them just in the transitional stage. These measures were introduced soon after the Independence.

As early as 1950, the textiles mills were required not to manufacture certain specifications of dhoties, saris and lungis. This was followed by the imposition of an excise duty on the mill products out of which subsidies and rebates for the handloom and *khadi* products have been given. Similarly, the setting up of large units for the manufacture of footwear has been banned. One type of matches has been r served exclusively for the cottage scale. Large units have also been banned in the sports goods, slate and pencil, *bidi*, writing ink, chalk, crayon and candle manufacture. In the processing of food and edible oil-seeds too, measures for protecting the village industries have been adopted by restricting the growth of large industries.

A view was expressed that certain specified products suitable for being manufactured by small and cottage industries should be selected and assigned to particular states or regions which may provide facilities in regard to raw materials, skill and other resources for those industries and the Centre should ban the manufacture of these products by large industries and also their import from abroad. The Committee gave a very careful thought to this but came to the conclusion that it was neither possible nor expedient to make water-tight assignment on regional or state basis of the products to be liandled by small and cottage industries. Each state should promote small and cottage industries suited to the conditions prevailing in that state and more than one state may encourage the same type of goods to be produced provided there was adequate market for the same. As stated in the preceding sub-section protective measures for small and cottage industries have already been taken in certain directions and there is no doubt that it should continue to be the endeavour of the State to arrange these labour intensive industries without affecting the overall industrial development of the country.

55. Co-ordination among large, medium, small and cottage industries.—We gather from certain statements of the leading industrialists in India that they are now aware of the necessity of co-ordinating the activities of the major and the ancillary industries. The growing complexity of business administration and the increasing importance and continuous progress of technology have been consuming the energy and attention of the large business managers to such an extent that they are anxious to be relieved of as much of the side activities as possible. Moreover, they should realise as we have pointed out earlier in this chapter that the growth of complementary and subsidiary industries would provide sources of additional income to the working class families and thus reduce the pressure for a high level of a living wage rate in the industrial townships. Thus there is need for co-ordination from more than one point of view.

It may be noted that this co-ordination is called for at a number of levels. The Government of India arranged for a co-ordination of the activities of the different Ministries concerned with the smaller industries as early as 1957. There is, in addition, a clear case for co-ordination among different sizes of industries at the national and the state levels as for the different industries separately. Finally, there is the need for co-ordination at the local level as we have noted in connection with the growth of a permanently resident industrial population in the industrial townships. We have also pleaded in this chapter for an examination of the nodal points of the basic, large and medium industries with a view to find out the scope for the dependent ancillary and derived industries.

56. DIFFICULTIES OF THE SUPPLY OF RAW MATERIALS AND POWER.

56.1. Supply of raw materials.—The small engineering industries went through serious strains owing to their unutilised capacities during the last three years as a result of the shortage of raw materials. These difficulties about the supply of pig-iron, scraps, steel, alloys, hard coke, etc., are being tackled by indigenous production and controlled imports.

But many of the handicrafts also suffer from the lack of quality raw materials. The major difficulty of the handloom industry for two decades has been the shortage of yarns and the major objective of the Ambar Charkha has been to solve this problem. It is hoped that the proposed spinning mill at Mokamah and the spun silk factory at Bhagalpur would go a long way in solving of these difficulties. The supply of pig-iron and hard coke has been improving since the development of the coking industry and the iron and steel industry in and round about this State. The position of alloys continues to be difficult and the manufacture of alloys, as pointed out by the Techno-Economic Survey, is very important. Research for evolving new substitute alloys using less of the scarce non-ferrous metals has been going on in the laboratories.

56.2. The supply of electrical power.—At a number of places we have referred to the high cost of electrical energy to the Bihar industries as a serious handicap to their competitive capacity. The complaint relates not only to the cost for the small industries but also to the non-availability of power both to the small and to the large industries.

In regard to the cost of power, small-scale industries are placed in a very disadvantageous position vis-a-vis the large-scale industries. The reasons are apparent from the schedule of tariffs prevailing in different parts of Bihar. The main reasons of disparity are that—

- (i) small-scale industries cannot have the benefit of high tension tariffs for obvious reasons,
- (ii) their consumption is normally in the lower slab whose rates are comparatively higher.

In Bihar the low tension rates are Re. 0-2-6 (16 naye paise) (gross) per unit in areas fed by Damodar Valley Corporation transmission lines whereas in North Bihar and other areas which are served by diesel power houses, the rate for industrial load is Re. 0-4-6 (28 naye paise) per unit. As these rates are too high for small-scale industries, it is necessary that power is made available at subsidised rates at least to certain categories of industries which are considered to be in particular need of such help. A scheme of subsidy is being considered in the light of the following conditions:—

- (i) The nature of the industries which should be considered eligible for subsidy.
- (ii) The upper limit of H.P. (Horse Power) used.
- (iii) The number of persons employed in the factory.

As the power used or the number of men employed determine the size of a factory also in respect of its capital outlay, limit of capital investment may be excluded from the definition of eligibility.

Even though the definition of small-scale industries includes all factories employing up to Rs. 5 lakh as capital and up to 50 men with power, the scheme has been confined for general application to a lower limit in order to observe in the first instance the result of subsidy and also to know the actual cost. If necessary, the scope of subsidy may be expanded for more general application in future. The subsidy is proposed to be granted in two forms—

- (a) One will relate to the general subsidy declared for the scheduled industries mentioned in the appropriate Government notification and this will be operated through the Electricity Department in the manner described later. Exception in this category can be made on the merits of individual application to the Director of Industries, Bihar.
- (b) The other form of subsidy will be granted to the deserving small-scale units on application and this will be operated under State Aid to Industries Act. Small-scale industries for this purpose will be defined as those manufacturing units whose productive capital does not exceed Rs. 5 lakh and which do not employ more than 50 men with power. The principles of subsidy in Industrial Estates will be formulated by the appropriate administration subject to the approval by the Director of Industries, Bihar.

The general subsidy will apply to all the units of industries specified in the schedule of the Government notification employing not more than 20 workmen and connected to motor load of 20 H. P. (Horse Power).

The amount of general subsidy will be to the extent of limiting the liabilities of each firm eligible for subsidy to not more than Re. 0-1-6 (9 naye paise) per KWH consumed in areas where the low tension rates are Re. 0-2-6 (16 naye paise) per unit (gross) and in other areas to Re. 0-2-6 per unit. For example, if the firm eligible for subsidy is using 10 H.P. motor and its consumption during a month comes to 300 units, the firm will have to pay not more than Rs. 28-2-0 (300×0-1-6) in areas where gross low tension rate is Re. 0-2-6 per unit and in other areas the charge will be not more than Rs. 37-8-0 for 300 units consumed.

The difference will be paid direct by the Industries Department to the Electricity Department, Bihar or the Electric Supply Agency, as the case may be. An approximate cost of subsidy during the current plan period has been accordingly worked out. According to that the total cost comes to Rs. 6,19,000. Out of this the contribution of the Centre will be 50 per cent, i.e., Rs. 3,09,500 and the State Government will have to contribute the same amount.

According to a Government notification all industries specified in the schedule and entitled to subsidy will claim rebate against their electricity bill of the Electric Supply Agencies. The latter will forward total claims to the Director of Industries, Bihar who will transfer the money to the account of Electricity Department, Bihar or to the private Electric Supply Company, as the case may be.

An application form has been drawn up to make each claimant of subsidy furnish the required information. On the basis of this application, applicants eligible for subsidy will be registered. Only these registered factories will be paid the rebate by the Electric Supply Company or Electricity Department of Government of Bihar. Applications together with the statements forwarded by Electric Supply Agencies will enable the Industries Department to make necessary modification in the scheme from time to time.

of sales tax exemptions as a method of stimulating industrial development. But we note that some state governments have exempted handloom cloth from the tax. We would ask the State Government to examine the possibility of the judicious grant of tax exemptions to smaller units in selected industries to off-set part of the cost advantage enjoyed by larger units. We further note that decentralisation of manufacturing processes is encouraged by a single point tax on the final product. So the possible effect on industrial organisation should be borne in mind in considering the proposal of the Taxation Enquiry Commission for a multiple-tax. The attention of the Committee has been drawn to the competitive weakness of some of the typical small-scale industries of Bihar by the multiple sales tax in a number of meetings. The subject, however, requires more detailed examination than what we can undertake, but we recommend that exemption from the sales tax as allowed by the neighbouring states should also be allowed in this State so that the products of this State may compete favourably with similar products of other states.

Some of the provisions of the Factories Act, if applied to units of unorganised industries like rice, oil, bidi, etc., involve larger expenditure on the part of the employers, without conferring any tangible benefits on the workers. The question of granting exemptions to such factories from certain provisions of the Factories Act should be considered by the Government.

58. Stores Purchase Policy.—We find that the State Government have no settled policy of purchasing the products of cottage and small-scale industries for their own requirements. Each department makes its own purchases and does so by competitive tender under conditions which make it virtually impossible for small units to obtain any orders. We consider that Government departments should be prepared to forego some of the advantages of bulk purchase from large suppliers for encouraging Bihar's industries and thus giving employment to the people in the State. The Central Government have adopted a Stores Purchase Policy where by a definite price and quality preference is given to the products of small industries. A few state governments including the Government of Bombay have done the same. The Central Government have actually agreed to 25 per cent pre-emption of certain categories of stores for small industries through the National Small Industries Corporation. We urge the State Government to adopt without delay a similar policy, to set up an adequate inter-departmental machinery to enforce the policy and to use it for the planned development of selected cottage and small-scale industries in the State. In particular. we envisage that much of the requirements of the Public Works Department building programme, and all fittings and spare parts for the State Electricity Grid and the tube-well irrigation scheme can be manufactured by small-scale industries within the

We have given elsewhere further details of the patronage extended to the small engineering industries by the Ministry of Railways.

- 59. Protection from imports.—The only existing small-scale or cottage industry of this State which requires protection is the mother of pearl button industry of Mehsi (Champaran). We suggest that the Tariff Commission be moved to re-impose the protective duty on the import of Japanese and other buttons, which was withdrawn last year on its recommendation. Protective tariff may, however, be required for other new small-scale industries which are established in Bihar in the Second and Third Five Year-Plan periods.
- 60. Promotion of exports.—Hand-woven textiles, ivory, silver-ware, bell-metal articles, sports goods and other small-scale and cottage industries products are exported from India. Apart from the usual measures of trade promotion by participation in exhibitions and trade fairs abroad, negotiations have been started with large foreign importers for the supply of handicrafts goods in bulk. Some industries are allowed to import raw materials (e.g., precious stones) on the basis of a fixed quota for export. Rebates of import duty are also allowed for encouraging exports.
- 61. The All-India Small-scale Industries Board and the National Small-scale Industries Corporation.—Both of these Central institutions have been functioning with their subsidiary bodies since 1954. The Corporation was started with a capital of Rs. 10 lakh and its five Divisions would bring out the services which they are performing. These Divisions are—
 - (a) The Government Purchase Division which secures contracts from the government purchasing agencies for the small units and also encourages their establishment as ancillaries to large industrial units.
 - (b) The Hire Purchase Division supplies industrial machinery and machine tools to small units on hire purchase.
 - (c) The Marketing Division fosters the marketing of the products of small units by publicising and retailing through mobile vans and other methods. One of the outstanding services is the conferring of the boon of the trade or quality mark of "Jansevak" on the products of the small units which gives a name to the product. Evidently, only such goods can be granted this privilege which are standardised. Hence the fostering of standardisation has been a necessary step.
 - (d) The Industrial Estates Division. This subject has been examined separately in subsequent sections.
 - (e) The Projects Division. This division has been setting up two prototype production-cum-training centres at Okhla (near Delhi) and at Rajkot with West Germany and U.S.A. assistance respectively. This step would tend to foster the competitive and survival value of small industries by enabling them to manufacture small machinery and machine tools.
- 62. The Small Industries Service Institutes.—These were originally established at Delhi, Calcutta, Bombay and Madras. They have opened branches in other places also for fostering technical improvements in the small industries. One of their important functions is to guide the working of the industries located in the Industrial Estates. A small Industries Service Institute has also been established at Patna along with a number of branch extension centres to give technical advice to small industrialists and to survey the problem of the small industries with the co-operation of the technical staff of the Director of Industries.
 - 63. Administration of the Improvements of the Small Industries in Bihar.
- 63.1. Small industries.—The Cottage and Small-scale Industries Division of the Industries Department, which is under an Additional Director of Industries, has been considerably strengthened in the Second Plan period. Some senior technical posts have

been created at headquarters to enable the development programme of Rs. 12 crores to be implemented efficiently. In the field, besides the District Industries Officers and Inspector of Industries in each Sadar subdivision, posts of Industrial Extension Supervisors have been created at the rate of one for every two Community Development Blocks. These posts are gradually being filled and the personnel are being trained with the help of the Central Government's training institutions.

The following advisory bodies hve been established apart from the statutory State Khadi and Village Industries Board which is an autonomous body:—

- (i) The State Handloom Board.
- (ii) The State Small-scale Industries and Handicrafts Board.
- (iii) The Advisory Council of the State Khadi and Village Industries Board.
- 63.2. Industrial pilot projects and block schemes.—In the scheme of location of cottage and small-scale industries special attention is paid to the Community Development Blocks. Additional funds, outside the ceiling of the industries sector, are also available from the Community Development budget for the training of artisans, formation of industrial co-operatives and financial assistance to them. Similar funds are also available in the Multi-purpose Welfare Projects financed by the Ministry of Home Affairs. A number of schemes for cottage industries may also be taken up by the State Social Welfare Board in the development blocks for which the Board has special responsibility. Blockwise development programmes for cottage industries have been prepared for each of these areas. It is clear that the rate of investment in the cottage and small-scale industries sector that has been found possible in the Second Plan period will not be sufficient to reduce the quantum of unemployment significantly taking into account the rate of population growth. The need has, therefore, been felt of pilot schemes for more intensive development. Three areas of the State have been selected for the location of "Industrial Pilot Projects" each consisting of three Community Development Blocks. These are-
 - (i) Biharsharif.
 - (ii) Ranchi.
 - (iii) Pusa.

It is the object of these Pilot Projects to determine the developmental measures, the rate of investment and the types of small industries that would be necessary under different conditions in Bihar to ensure something like full employment in a limited area. The Pilot Projects also serve as testing grounds for schemes of an experimental nature. Complete statistical data about the industries in these areas are collected and assessment is made of the results of schemes which have been started for the development of cottage and small-scale industries in these areas. The Biharsharif Pilot Project has been working for about two years and the others for just over a year. Much useful work has been done in these pilot areas and some degree of success has been achieved in a number of schemes started there. We hope by the end of the Second Plan period to have adequate data for launching a sustained attack on the problems of under-employment and unemployment so far as these can be solved by the development of cottage and small-scale industries in the Third and subsequent Plan periods.

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The Directorate of Industries is also working in co-operation with the Small Industries Service Institute at Patna and its branches in surveying the problems of the small industries.

63.3. Machinery for the improvement of the handicrafts in Bihar.—The improvement of the handicrafts is the responsibility of the Department of Industries through which

the plans and policy of the Central Handicrafts Board are also implemented. It is natural that in this sphere the states have got to follow very largely their own policies in view of the wide differences in the handicrafts from state to state.

Production-cum-training centres and common facility services are being provided for reviving dyeing crafts and training of artisans. Some of the important ones are the Toy Development Centre at Ranchi, the Calico Printing Centre at Patna, the Glass Bangle Centre near Motihari, the Siki goods Centre at Darbhanga, the Lacquer-ware Centre at Patna. Other centres are being organised and the number of handicrafts patronised is also being increased. The Institute of Industrial Designs at Patna is responsible for improving and modernising the designs of the articles.

64. The Industrial Estates in Bihar.—The Industrial Estates provide accommodation for small-scale industries with all facilities like electric supply, water-supply, communication, post office, banking facilities, etc. In the Second Five-Year Plan for Bihar, there is a provision for the expenditure of Rs. 16 lakh during the plan period. So far the following four Industrial Estates have been sanctioned!—

	Name	of the Estate.	(Area of factory sheds covered space Square feet.	Cost (Rs.).
Patna		Man de la comp	••	1,56,000	41,60,380
Darbhanga	••		••	17,000	6,64,050
Ranchi	••	. 4 5 d 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	• •	32,000	8,74,660
Biharsharif	••		••	56,000	13,20,000

The first phase of construction in all the four estates is over and the second phase is likely to be taken up soon. In the Patna Industrial Estate, out of 69,600 square feet of sheds already constructed 36,000 square feet have been allotted to private entrepreneurs, some of whom have already occupied it. It is expected that all these units will go into production in about three months. The balance of 33,600 square feet has been taken by Government sponsored schemes including schemes to provide common facility service for the small-scale industries both in the Industrial Estate and outside. Schemes for assembly of 30,000 bicycles per year, for the manufacture of electrical accessories, for the development of sports goods industries, model foundry and raw materials depot deserve special mention.

In the remaining three Industrial Estates also the sheds already constructed have been allotted to Government sponsored schemes and private units. In all the Industrial Estates, there will be 21 Government sponsored units and about 50 units owned by private entrepreneurs. It is estimated that these 71 units will provide employment to at least 3,000 people.

Experience in the allotment of the sheds in these Industrial Estates to private parties has shown that many small industrialists would like to have a plot of land with all facilities and would prefer to put up their own shed. For such industrialists a portion of Industrial Estates called "industrial area" will be set up soon. With the Heavy Machinery and Foundry and Forge Plants at Ranchi, the 4th Steel Plant at Bokaro and Oil Refinery at Barauni, there is large scope for ancillary industries as

also for various kinds of consumer goods. Industrial Estates may, therefore, be immediately started in these centres.

We recommend that preference may be given to such small units as are prepared to start their business on the Industrial Estates in the matter of financial help under the State Aid to the Industries Act.

We recommend that such concerns as are likely to undertake the manufacture of standard articles suitable for export markets or for meeting the bulk purchase requirements of the Railways, large constructional firms, etc., be specially encouraged to establish themselves on the Industrial Estates.

We further recommend the establishment of Industrial Estates in-

- (i) the neighbourhood of all the growing industrial conurbations with a view to develop small ancillary and derived industries, and
- (ii) the populated regions with extensive and intensive markets.

65. The Bihar State Khadi and Village Industries Board.—The statutory Khadi and Village Industries Board working according to the overall planning of the All-India Khadi and Village Industries Commission along with the non-official Khadi and Gramodyog Sangh has got an unlimited possibility for revolutionising the rural economy of Bihar. They practically work on parallel lines. The State Khadi and Village Industries Board has been looking after khadi spinning and weaving, Ambar Charkha spinning, palm-gur, gur and khandsari, hand-pounding of rice, atta chakki industry, bee-keeping, soap making from non-edible oil, hand made paper, village pottery, dead cattle utilisation and leather industry, cottage match industry and edible oil or ghani industry. The scope is not rigidly limited. The State Khadi and Village Industries Board discharges its responsibilities under the supervision of the State Government as well as of the All-India Khadi and Village Industries Commission. During 1956-57 and 1957-58 the State Board received Rs. 68 lakh (approximately) from the Commission, and the developmental expenditure of the Board up to March, 1958 amounted to Rs. 38 lakh (approximately). The Board has published a review of the progress of the schemes under its charge during 1956 to 1958. Notable advances have been made in the introduction of Ambar Charkha; and improved ghanis and 25,000 traditional charkhas were introduced in the areas of the State affected by drought in 1957-58.

Particular attention is being paid in the Second Plan to the follow-up of the training of artisans. Wherever possible they are organised after training in industrial co-operatives and assisted financially to take up commercial production, otherwise they are assisted individually. Efforts are made to find markets for the co-operatives, especially by channelling orders from Government Departments to them under the Stores Purchase Policy. For women, training-cum-production centres in tailoring and knitting and embroidery have been found to be particularly popular.

Two older women's Industrial Schools at Ranchi and Monghyr have been expanded and upgraded, and four new schools have been established. In addition, recurring grants-in-aid are being given to a number of private institutions engaged in craft training.

During this period the State Board has been able to give full-time and parttime employment to as many as 2,46,180 persons. This does not cover employment opportunities afforded by the Khadi Gramodyog Sangh to a large number of spinners, weavers and other categories of artisans engaged in khadi production. The Khadi and Village Industries Board also runs training and demonstration centres for the benefit of the artisans.

To provide marketing assistance for these industries Khadi and Gramodyog Bhawans have been set up at Patna, Jamshedpur and Muzaffarpur. Similar emporia are also to be set up at Ranchi and Bhagalpur. Small village industries emporia at each district headquarters as also at important subdivisional headquarters are to be opened. For convenience in marketing *khadi* produced by co-operatives from *Ambar Charka* yarn Khadi Sales Bhandars are being opened. Besides this, assistance to industrial co-operatives are given to start small and large marketing depots for particular industries.

Besides, the All-India Khadi and Village Industries Commission also meets the cost of the following developmental activities in Bihar:—

- (i) Intensive development areas, directly administered by the Board, at Tiril (Ranchi), Kawakola (Gaya) and Hansa (Darbhanga).
- (ii) Additional working capital and other assistance such as rebates paid directly to the Bihar Khadi and Gramodyog Sangh for the development of both Ambar and traditional khadi.

The medium for the development of these industries is either a co-operative society or a society registered under the Friendly Societies Registration Act of 1860. These institutions are given liberal assistance in various forms including out-right grants for some purposes.

The statement which follows shows the enormous scope for the activities of the Board and also indicates how we have so far only touched the fringe of the field awaiting to be covered.

Statement showing details of production centres, training centres and demonstration centres run by the Bihar State Khadi and Village Industries Board, Patna and units of Village Industries set up through its assistance during 1956—58.

I. Khadi.	यहार्ष्	नप्रन			Number of centres.
(1) Relief-cum-Production C	entre	••	••		110
(2) Ambar Charkha—					
(i) Up-Parishrama (ii) Ambar Vidyal (iii) Servicing Stati (iv) Store Godown	aya ion s	••	••	•••	52 1 3 1
(3) Sales Emporia	••	••	••	••	2
II. Village Industries.					
(1) Village oil industry—					
 (a) Ghani manufacturing (b) Model Ghani centres (c) Registered Ghanies (d) Selling agencies 	centres	··· ···	••	••	9 11 4,519 311
(2) Palm Gur Industry					
 (a) Production centres re (b) Production centres re (c) Central Training Inst (d) Plam Gur Training (e) Plam Gur Factory 	in through situte			••	18 7 1 3 1

				N	ismber of Centres,
(3) Gur and Khandsari Inc	lustr y —				
Demonstration centres	••	••	••	••	16
(4) Hand-pounding of rice in	ndustry-	-			
(a) Implements manufact(b) Paddy Dehusking cen		ntres	••	••	3 113
(o) Faudy Dendsking cen	101 OS	••	• •	••	
(5) Atta Chakki industry— Chakki manufacturing ce	ntres				2
(6) Bee-keeping industry-					
(a) Sub-stations		• •			20
(b) Area offices			• •		2
(c) Model Apiary	· ·	• •	• •	• •	1 1
(d) Fieldmen's Training (e) Show Apiary	Centre	• •	• •	• •	i
(e) Bhow Apiaty	••	••	••	• •	-
(7) Soap making from non-	edible oi	l industry	y		
(a) 'A' class unit					1
(b) 'B' class units		• •	• •	••	*
(c) 'C' class units	• •	• •	••	••	viz.
(8) Hand-made paper indust	ry				
(a) Medium-scale unit		W12% -			1
(b) School units		tillen.	••	••	ò
(9) Village Pottery Industry	<u> </u>		\$		
(a) Model Production Ce			• •	• •	2
(b) Common work-sheds			• •	• •	2
(10) Village Leather Industry	y—				
(a) Flaying centres	1.10.3				5
(b) Modei Tanneries			••	• •	2
(c) Big sales depot				• •	1
(d) Small sales depot	17.00		• •	• •	1 100
(e) Pits (new)	· Children		••	••	100
(11) Cottage Match Industry 'D' class factories	— हान्य धं	व नयनं	••	••	2

66. Light engineering industries.—Both in our examination of the medium and small as well as of cottage industries we have given figures to show the backwardness of this State in the engineering industries. We have noted how this State has failed to utilise the advantages of the existence of the heavy metallurgical industries, of the coal resources and of man-power to build up the structure of the lighter engineering industries manufacturing producer and consumer goods. In view of the various schemes of development of large and medium industries at present under execution or proposed to be taken up in the near future, and in view of growth of industrial townships, of the various overhead facilities already maturing or in the offing, we urge that no time should be lost in taking up a systematic examination of the present position, and difficulties and the methods to be adopted for rapidly developing the light engineering industries on a cottage as well as hand trade scale as has been done by the Government of West Bengal. These industries represent the final storeys of a structure of which the coal utilisation and metallurgical industries represent the base. The foundries, forges, rolling and re-rolling mills, machining shops, machinetool industries, final machine making industries, and the heavy engineering goods industries manufacturing structurals, heavy machinery for mining, steel plants, paper, cement, aluminium, sugar, electrical generating and other plants, boilers, locomotives, textile mills, wagons, coaches, automobiles, etc. represent the successive stages before we come to the lighter engineering goods like diesel engines, pumps, small generators,

- s wing machines, small hand driven machines, hand tools and the numerous small producer and consumer goods. We have given an account of the developmental activities of the Department of Industries and other organisations in the preceding sections.
- 67. Present position of the light engineering industries.—The scope of the light engineering industries is so vast that we may only give here briefly some examples and illustrations. It includes the manufacture of complete small products for consumers and producers as well as the manufacture of parts of such heavy goods as locomotives, wagons, coaches, automobiles and small structurals, etc. It includes such small articles as cutlery, agricultural implements, automobile lcaf spring, radiators, battery containers, industrial fasteners, builders' hardware, wood screws, hand tool, padlocks, steel furniture, trunks and vaults, buckets, etc. It includes the manufacture of intermediate or semi-finished goods like steel sheets, rods and bars as well as aluminium sheets and circles. It includes the manufacture of bicycle and sewing machine parts for assembly or for replacement. It also includes small units of cold drawing of steel, manufacture of tubes and pipes and similar other things from plates and rods.

We are giving below an account of some of the lines on which information is available.

68. Small re-rolling units.—While large re-rolling mills are concerned with the utilisation of scrap, small re-rolling units are necessary for fabricating finished steel, circulating scrap and process scrap into shapes suitable for further processing by small engineering industries. We have noted how the re-rolling, small forge and foundry industries have been the basis for the widespread small cottage and handicraft engineering industries in West Bengal, the Punjab Uttar Pradesh and Bombay. The following comparative table brings out the backwardness of Bihar according to the figures for 1956:—

STATEMENT SHOWING NUMBE & F RE-ROL ING UNITS AND THEIR ANNUAL CAPACITY NITHELIFFERENT STATES.

State.		Nu	uber of re-roll- ing units.	Annual capacity in tons.	
l			2	3	
West Bengal	••	••	27	2,49,804	
Uttar Pradesh			23	1,15,848	
Punjab and Pere	su		63	1,44,216	•
Bombay	••	••	14	1,16,892	
Delhi		••	5	9,072	
Rajasthan			4	22,608	
Madhya Bharat		• •	Б	31,032	
Saurashtra	• •	• •	3	10,260	•
Madras		• •	2	9,900	
Orissa		••	1	5,472	
Rihar		• •	1	1,620	
Ajmer	••	••	1	1,440	•

69. Foundry, Forge and Machining Shops.—For most of the small engineering establishments, foundries, forges and machining facilities constitute common services. The larger units have their own facilities. Compared to other states, Binar is poorly equipped with all these facilities.

There are 95 small-scale foundries, employing nearly 1,332 persons in the State. In 1956 the production was about 4,000 tons. The following table gives districtwise figures of number of units and workers employed:—

TABLE 57

Distr	riet.	No.	of foundries.	Total no. of workers employed (approximately).	
1			2	3	
Patna	••	• •	15	218	
Gaya	••	• •	2	16	
Shahabad	••	• • Tarr	1	15	
Muzaffarpur	- 25	135	3	30	
Darbhanga	198	7.	5	40	
Saran	••		4	66	
Champaran	••	li ten 1	4	30	
Bhagalpru	••		3	47	
Monghyr	••		3	22	
Purnea	16		2	32	
Santhal Parga	188	मदाधन व	1 2	40	
Ranchi	•••		3	80	
Singhbhum	••	••	3	122	
Dhanbad	••	••	45	624	
	TOTAL		95	1,332	

It is estimated that the total production of foundry products in both large and small-scale sectors is only 5 per cent of the requirements. The rest is met by imports from Calcutta and the Punjab.

The State Government are setting up one model foundry in the Patna Industrial Estate. This will employ about 50 persons. Another private unit, which will also employ about 50 persons is expected to be set up in the Ranchi Industrial Estate.

There was a shortage of raw materials like hard-coke and pig-iron which hampered the progress of the foundry industry in the State. But now there is a more liberal supply of pig-iron and coke and it is expected that more new units will come up. The State could aim at producing at least 20,000 tons more foundry products per year during next 6-7 years. If this target is achieved additional employment will be provided to about 5,000 people.

To some extent every small or cottage engineering establishment has to possess modest forging and machining facilities. But the existence of separate larger units is useful where a cluster of small engineering shops has grown up or can be tostered. The Industrial Estates are eminently suitable for them. For the manufacturers of hand tools, implements, precision tools and instruments, these facilities are essential.

- 70. Light engineering industries for manufacturing small gadgets and components for the railways.—We have sought to go into the details of the scope in Bihar for the manufacture of small gadgets and components for the railways. We found that the subject requires much more detailed examination than we have fac lities for and we recommend a more detailed examination of the industry by the Department of Industries. Meanwhile, we are noting here all the relevant points which appear to us to point to the necessity of a serious examination of the subject.
 - (a) The Ministry of Railways are anxious to exploit all available indigenous sources of the supply of equipment and they have accepted and are implementing practically all the recommendations of the Railway Equipment Committee of 1956.
 - (b) The foreign exchange difficulties lend further support to this desire of the Ministry.
 - (c) One of the major difficulties of engineering and capital goods industries is the great fluctuation in the utilisation of installed capacity. The implementation of the present and the next Five-Year Plans are going to strain the transport facilities severely and the need of equipments for renewals and increase in the capacity of the railways would be a continuous one providing employment for the engineering industries. For example, when the Second Five-Year Plan programme was being worked out by the Railway Board, an annual requirement of 10,000 wagons was estimated. But within a year or two, as more data became available, the estimate rose to 30,000 wagons a year. The manufacture of wagons, coaches and other equipments gives rise to the need for a large number of components, fittings, gadgets and tools.
 - (d) We find that there is only one concern in Bihar at Muzaffarpur manufacturing metre gauge wagons. Another enterprise is projected for the manufacture of frames at Barauni and we do not know how long it would take to materialise. We also find that the general overheads of the existence of small foundries and forges and establishments for machining castings are wanting. Again the skill for handling precision machine tools have got to be built up because the Railways naturally insist on a very high level of standardisation, precision and quality. A beginning has got to be made at the assembly level of production also so that the smaller ancillary units may find scope for growth. We would welcome a move by the State Government itself to take up one of the medium lines in collaboration or partnership with private enterprise.
 - (e) We specially recommend the setting up of small engineering units in the Industrial Estates and also at other suitable places to utilise fully the offers of the Railways for the purchase of railway equipments through the Regional Railway Equipment Advisory Committee and the Small Industries Corporation.
 - (f) We have examined the list of the members of the Regional Railway Equipment Advisory Committee, Calcutta, and note that Bihar has only one representative out of the sixteen members. It is possible that this fact itself is an indication of our light engineering industry being under-developed. We, however, recommend that Bihar should be adequately represented on this Committee.

71. MANUFACTURE OF BIC CLE-TIC SHAW PRTS, HOLDWA'E, TOOLS, I ST UME TS AND OTHER GOODS.

In the following sub-sections we have examined the present position of the manufacture of the following articles, whose demand in this State is at present being met by imports from other states:—

- (i) Manufacture of bicycle and rickshaw parts.
- (ii) Cutlery.
- (iii) Aluminium utensils.
- (iv) Automobile Leaf Springs.
- (v) Industrial fasteners.
- (vi) Surgical instruments.
- (vii) Builder's hardware.
- (viii) Wood screws, wire nails and panel pins.
 - (ix) Hand tools.
 - (x) Padlocks.
 - (xi) Teaching appliances and instruments.

We came to the conclusion that Bihar is very backward and deficient in their manufacture. At the same time with the increase in the level of income, education and industrialisation, their demands a e likely to go up.

71.1. Manufacture of bicycle and rickshaw parts.—There has been very little development in the small-scale sector of the bicycle industry in Bihar. Messrs. Jamshedpur Industries, Jamshedpur run the only unit at present manufacturing cycle parts. Besides this the State Government are setting up (i) one bicycle assembly workshop in the Patna Industrial Estate with an initial capacity of 18,000 bicycles per annum and ultimate capacity of 30,000 bicycles per annum, (ii) a cycle parts manufacturing unit in the Biharsharif Industrial Estate.

There are a number of units manufacturing cycle-rickshaw parts and assembling cycle-rickshaws. The following table shows the approximate number of cycle-rickshaw manufacturing units and the approximate number of workers employed in these units in different towns of Bihar:—

TABLE 58

Location.			No. of cycle- rickshaw manu- facturing units.	Approximate number of workers employed.
1			2	3
Patna	• •	, .	-25	75
Muzaffarpur			10	35
Darbhanga			5	15
Bhagalpur			5	18
Monghyr			3	10
Gaya			8	25
Dhanbad and	Jharia		6	20
Ranchi			10	32
Purulia			3	10
Arrah			5	16
Other places			20	70
	TOTAL		100	326

Besides these 100 manufacturing units employing 326 workers, there are estimated to be about 600 cycle and cycle-rickshaw repair shops engaging about 1,700 persons all over Bihar.

The demand for bicycles and bicycle parts is expected to increase at the rate of 30 per cent per annum. For rickshaw parts, both for new rickshaws as well as for replacement, it is expected that the increase would be at the rate of 20 per cent per annum. In 1955 the sale of bicycle in Bihar was to the order of 40,000 and it may be expected that the annual demand for bicycles in 1961 would amount to about 1,40,000. At present the annual production of the one large factory in Bihar is about 15,000. The large scale factory has a sanctioned capacity of 60,000 per annum which is expected to be attained in course of the next two or three years. The large scale factory in Bihar would cater not only to internal demand but also to the demand in markets outside the State and export markets. There is thus sufficient scope for small-scale manufacturing-cum-assembling units.

An all-India target of 2,50,000 bicycles to be manufactured or assembled annually by small-scale units has been fixed under the second Five-Year Plan. Bihar has received a quota of 30,000 bicycles per annum in the small industries sector.

It is roughly estimated that additional employment to 1,000 persons will be provided by the setting up of new units. Besides this, as already stated, there are 100 existing small units for repairing-cum-manufacturing and assembling of cycle-rickshaws all over the State engaging about 323 persons and there are about 600 small cycle repair shops engaging about 1,700 persons all over Bihar. Thus the bicycle and rickshaw parts industry and repair shops in the small-scale sector in Bihar at present employ about 2,026 persons in all. The future expansion in industry would most probably raise this to 3,000.

- 71.2. Cutlery.—There is no independent unit manufacturing cutlery in the State. One engineering unit and some sugar mills manufacture a small quantity only as a side line. There is scope for this industry in the state as most of our requirements are met by import. The increasing number of printing presses also requires cutting blades apart from the large demand of the sugar mills.
- 71.3. Aluminium utensils.—At present there are two units engaged in the manufacture of aluminium utensils and they employ nearly fifty persons. The demand for these utensils is expected to be doubled by 1961 over what it was in 1956.
- 71.4. Automobile leaf-springs.—There is only one unit manufacturing automobile leaf springs. Besides this there are about 50 units on cottage scale. These are primarily repair shops but manufacture loose leaves for replacement. The estimated annual consumption of the State in 1956 was 445 tons whereas the production was only 25 tons. The consumption for the entire eastern region also is much more than the production.
- 71.5. Industrial fasteners.—There are two units on a small-scale basis in Bihar. The consumption is 1,000 tons more in the State than what is produced.
- 71.6. Surgical instruments.—There was one unit in Bihar in 1956 employing 17 workers with an output valued at Rs. 20,000. The estimated present consumption of Bihar is of the order of about Rs. 2.5 lakh and by 1961, it would increase to Rs. 6 lakh.
- 71.7. Builder's hardware.—Bihar produces only a small portion of the requirements (about 80 tons) and it is expected that the demand will rise at the rate of 20 per cent per annum on account of the increasing construction activities.

- 71.8. Wood screws, Wire nails and Panel pins.—There is only one unit in the State producing 80 tons per day. Consumption is expected to be doubled by 1961.
- 71.9. General engineering.—There were 77 registered units in 1956 and 12,042 workers were employed in these units. The demand is expected to rise with the progress of industrial development.
- 71.10. Hand tools.—In 1956 there were 4 small-scale units and about 300 cottage units in Bihar. More than 1,200 persons were employed in these units Eighty per cent of the all-India requirement is imported at present.
- 71.11. Padlocks.—There were two units in 1956 employing 86 workers and producing Rs. 63,000 worth of padlocks. Individual artisans also manufacture padlocks. The present consumption of padlocks in Bihar has been estimated at Rs. 6.32 lakh. The demand is expected to rise in future.
- 71.12. Teaching appliances and instruments.—We have pointed out in the chapter on "Employment of Educated Persons" (Chapter XIII, Section 67) that there is an appreciable demand for various kinds of appliances and instruments required by students and educational institutions. It is bound to grow rapidly with the growth of schools and introduction of science subjects more extensively. But at present no unit in Bihar is manufacturing these articles.
- 71.13. Recommendations.—In view of the facts brought out above and a clear indication of increased demand for them, we recommend that small units of all these industries be established in Bihar.
- 72. Cotton yarn spinning.—The value of cotton spinning has been demonstrated as a relief occupation so fully that it requires no examination. We recommend the continuance of the help and patronage which it has been receiving. But it must be treated as a relief occupation since even the spinner with the four-spindle Ambar Chirkhi is not expected to earn more than 75 Naye Paise a day. With the traditional charkha, a daily earning of 25 Naye Paise is considered satisfactory though, in exceptional cases, highly skilled spinners may earn more for quality yarn. It is desirable to treat spinning as a spare time or part time work. And yet the social value of the occupation in ameliorating distress, specially among middle class women is so great that as a sheer humanitarian measure of relief, it must be placed above controversy. But in order to bring effective relief it is necessary that there is a guarantee of at least 75 per cent, if not cent per cent, of the labour being converted into cash. The primary need of the poor is food which takes precedence over everything except a given minimum of clothing. Hence, any system of giving to the spinners cloth in return for the yarn means very much diluted relief. The greatest handicap of this occupation is the recession in the outflow of the yarn into the weaving industry and the consequent accumulation of the stock of yarn at the village centres. One of the merits of the Ambur Churkhu is believed to be its superior yarn suitable for use as warp along with the other yarn. A hang-over of the objection of the orthodox advocates of the old charkha against the Ambar Churkha is still persisting. But our investigations show that at least the younger generation of the village women have been developing a preference for Amb.r spinning as an associative activity under one roof in the village Shramalaya.

One of the objectives of the promoters of Ambar Chirkha was to supply ample yarn for the hand-loom industry. It is, therefore, expected that the stabilisation and progress of the handloom industry would help Ambar Charkha spinning even after the setting up of the co-operative spinning mill at Mokameh.

73. Khadi.—Khadi had an emotional and ideological origin after having died out in most parts of India between the beginning of the century and the First World War. But after the severe set-back at the beginning of this decade the industry has picked up again on the strength of a liberal subsidy. As the principle consumer of the harkhu yarn, khadi weaving has got to be supported in the interest of handspinning. We have not been able to calculate the cost structure of khadi in order to determine the chances of its survival without a subsidy. But it is noteworthy that in South India, khadi weaving, dyeing and printing have made so much progress in producing goods of high quality and superior designs that it is able to compete with all the other kinds of indigenous and imported textiles. There is keen competition between the khadi and the hand-loom industries and the former appears to be even getting the better of the latter in some of the more artistic lines though not in the manufacture of the staple dhoties, saris and lungis. It is expected that the progress of Ambar Charkha spinning and the availability of cheaper and stronger yarns may put khadi on a stronger footing.

At the same time it has been urged that the weaving of staple utilitarian khadi should be restricted in quantity to what the market can absorb. This is a sound view because we think it preferable that those who are in the business are kept at work regularly and there is no piling up of stock and consequent depression in handweaving and spinning.

It may be noted that there is a clear distinction between the *khadi* and the hand-loom industry as the latter does not generally use the hand-spun yarn.

74. THE HAND-LOOM INDUSTRY.

- 74.1. General observations.—The depression in this industry appears to have reached its lowest depth in 1951. An integrated scheme for assistance to this industry was then launched under the guidance of the All-India Hand loom Board which, after a slow start, is now producing significant results. Almost 75 per cent of Bihar weavers have been organised into Co-operative Societies by the end of 1955-56, and the figures of production and sale of these societies have risen from Rs. 57,000 in April, 1954 to Rs. 9.45 lakh in February, 1955. About Rs. 24 lakh has been spent on the schemes so far, which include expenditure on the rebate of 0-1-6 in the rupee on sale through co-operative agencies. Rs. 13.75 lakh is employed as working capital. For attaining and maintaining full employment among hand-loom weavers, but without increasing their number, we propose that,
 - (a) further assistance to augment the working capital of weavers' societies should be given as short-term loans as production increases,
 - (b) the measures for rehabilitation which have been successful for the cotton hand-loom industry should be extended to hand-loom weavers of silk and woollen fabrics.
- 74.2. The inherent strength of the hand-loom industry.—There is one special feature of the hand-loom industry which is important from our point of view. It is definitely above the level of more relief industry and can develop its strength which has enabled it to get through the adverse conditions throughout the last and the present century right down to the beginning of the present decade. This point is proved by the fact that even in the first decade of the present century when the industrial policy of the Government of India was harnessed more or less to the interests of the British cotton manufactures, the hand-loom products, both coarse and fine, accounted for fully one-third of the cotton textile goods consumed in India. There is no doubt that one of the reasons of this survival has been the low earning with which the weavers have been satisfied. But this holds good of almost all the handicrafts in India.

- 74.3. Calculation of its employment potential.—The number of hand-looms, mainly the old throw shuttle, was 1,02,693 in 1941 and by 1951 the number increased to 20,00,000. There has been further progress since then in the number of looms. We are able to get more reliable figures now since the registration of looms has been made obligatory since 1956. Quite a large number of measures adopted by the Government, ranging from those emanating from the All-India Hand-loom Board to the organisational work and credit and marketing facilities provided by the Co-operative Department and the subsidy from the Cess Fund have been fostering the industry. The Reserve Bank of India, too, has now supplemented the funds of the Co-operative Societies for credit facilities to the industry. With these favourable conditions, there is much scope for further expansion of the industry if the handicaps which are explained below are removed. The fact that the industry is well established here does not mean that it is on par with the level of the development in the other states.
- 74.4. The handicaps of the industry and the measures recommended.—The Committee could not devote as much attention to the investigations into and study of the industry as it originally wanted to do. Hence, only broad recommendations on the basis of the data available are being made.
 - (a) A regular supply of yarn at a reasonable price is the most important consideration for the prosperity of the industry. Varying according to the kind of cloth manufactured, the cost of the yarn forms 51 to 78 per cent of the price of the woven stuff. Hence, a most effective aid to the weavers would be to prevent the yarn from being loaded with avoidable marketing and illegal charges. Illegal levies by railwaymen were reported to be an appreciable load on the price of the yarn.
 - (b) Short supply of yarn has been a perennial handicap of the industry. The weavers were subjected to the exploitation of the black-market during and after the last war and the co-operative societies have brought the weavers much relief. But a major handicap of Bihar in this respect is that we have not got a developed mill spinning industry and the yarn has to come from other states. The hand-loom industry has been developing so rapidly in South India, which had been meeting most of our requirements of hand-loom yarn, that the supply position continues to be difficult. It is expected that the co-operative mill which is being set up in Bihar would soon go into production and the supply of the Ambar yarn would also become regular. We have not been able to get the figure of the output expected from this mill or the quantity of yarn available from Ambar Charkha. Hence, we have not been able to calculate the supply and the shortfall now or in future. But we recommend that a regular flow of the supply of yarn of all varieties for the hand-loom industry be considered to be a responsibility of the State.
 - (c) We find two other factors which have got to be taken into account in devising the means for improving the economic condition of the weavers. Firstly, it is reported that there is full employment for the weavers only for four months, from November to February, in the year. Secondly, the average daily earnings from work for a full day range between Rs. 2.12 to Rs. 1.65 according to the count of the yarn used. Another estimate, based on a sample survey conducted some years back, showed that the number of days in a month for which the weavers found work averaged from 12 to 20 full days and 4 to 14 half days only. It is, therefore, necessary that the problem of providing more continuous work for the weavers is considered seriously. The question of persuading the families of the weavers to take to spinning during the slack spells may also be considered.

- (d) A large number of weavers are still outside the co-operative organisation and are thus unable to secure any of the advantages provided by the Government. It is reported that the Adivasi weavers of the Plateau area deserve special consideration from this point of view as also because their hereditary artistic skill is not being utilised by the industry fully.
- (e) It is recommended that as marketing facilities for the supply of yarn and sale of the products are expanded improvements in the designs and in the weaving of mixed fabrics of the superior quality may be introduced in the rural areas also in order to raise the earning of the weaver.
- (f) The Committee has been informed that even the introduction of the improved fly shuttle in place of the old throw shuttle has increased the output to an extent which makes the loom and the weaver idle for a larger number of days. It is, therefore, recommended that before small power-loom units are introduced on a large scale, as is being done under the Second Five-Year Plan, their effects on the employment of the rural weavers may be carefully examined. Unless a very large increase in the supply of yarn is brought about, the effect of improving the loom might be to throw a large number of weavers out of business. We also feel apprehensive that the introduction of power-looms would lift the business out of and over the financial capacity of a large number of weavers both in respect of the cost of the capital equipment and command of a reasonable working capital.
 - 75. SILKWORM REARING, REELING AND SPINNING OF SILK AND SILK-WEAVING.
- 75.1. Employment in the rearing of the worms.—The Census figure of those engaged in silkworm rearing does not give a correct idea of the volume of employment it provides in the rural areas. The number of persons engaged in this occupation along with all those engaged in poultry keeping, bee-keeping etc., came to less than 5 thousand in the Census of 1951. But this figure rather emphasises the importance of this occupation as a part-time work because only those were included in the Census figures who declared it to be their principal source of livelihood. Bihar conditions are favourable for all varieties of silkworm except the muga. Purnea district is considered to be the most suitable for mulberry silkworm. Eri silkworm also thrives in Bihar while the tassar cocoons are collected from the forest trees of sal, asan and arjun in the Plateau. In most cases, the occupation of rearing the worms is a part-time work, but the fact that mulberry and eri worms require large quantities of leaves, their rearing verges on becoming a more exclusive occupation. The supply of mulberry leaves requires regular cultivation of this plant and is the great limiting factor against a rapid expansion of the mulberry silk industry. The same is the case with the eri variety to a lesser degree. It is for these reasons that the progress of the silk industry in Bihar has not been as substantial as that in the other states of India. The production of tassar cocoons does not require so much of strenuous and continuous work. In order to overcome the limiting factor of the supply of mulberry leaves as well as to improve the quantity and quality of cocoons, Government have taken up various measures for increasing the supply of leaves, the availability of seeds, improvement of the strains, training of the rearers and of the reelers as well as of spinners, etc.
- 75.2. Silk recling and spinning.—The recling and spinning of the cocoons of all varieties is a more skilled and specialised occupation and necessarily tends to be centralised. The introduction of improvements in these respects by superior appliances, methods and supervision is being continued by the efforts of the Department of Industries by means of training centres, itinerant training teams, etc.

- 75.3. Silk-weaving.—We recommend further consideration being devoted to silkweaving because of a number of reasons given below:-
 - (a) Although quantitatively silk-weaving may not be providing the same volume of employment as the cot on hand-loom industry, a healthy survival and growth of the silk-weaving industry is necessary for the support and development of the rearing and the spinning industries employing, in aggregate, a large number of people.
 - (b) The industry brings a higher level of earning than that of the average cotton varn weaver.
 - (c) There is scope for a high degree of artistic work and for the employment of the entire family. In Assam and Kashmir, the higher category of artistic weaving with embroidery work provides scope for the special aptitude of women.
 - (d) Development of the silk-weaving industry creates additional employment in dyeing, printing and other subsidiary activities.

75.4. General position and needs.—The silk industry has enjoyed tariff protection continuously for a quarter of a century since 1934. This protection is to be continued for another five years as a result of the recommendations of the Tariff Commission in 1958. As a result of this protection as well as of the ceaseless efforts of the Central Silk Board of the Union Government and of the State Governments, the production of silk yarn of all kinds such as mulberry, eri, tassar and muga has increased from 24.88 lakh pounds in 1953 to 31.38 lakh pounds in 1957. But in spite of all our efforts, we have not been able to keep pace with the other states of India in the industry. Thus we find that whereas in 1953, Bihar claimed to be the second biggest silk producing State in the Union, the figures placed before the Tariff Commission in 1958 reveal that Mysore, Kashmir, Assam and West Bengal have forged far ahead of our State, as shown by the following tables:

TABLE 59. RAW SILK AND SILK WASTE.

('000 lbs).

State.				Mu	ılberry.	Non-mulberry.		
			Filature silk.	Charkha silk.	Silk.	Silk waste.		
1				2	3	4	5	
Mysore		••	• •	150	1,715		841*	
Jammu and Kashr		• •	•••	144	´ , .		115*	
West Bengal		••			412	13	214**	
Punjab					21			
Assam		• •		••	28	315	409**	
Bihar		• •			2	148	93***	
Uttar Pradesh				2	• •			
Andhra Pradesh				• •	2		••	
Madhya Pradesh	• •	• •		••	• •	150	50***	
Orissa	• •	••	• •	••	••	36	13***	
TOTAL		••		296	2,180	662	1,735	

^{*}Mulberry silk waste.
**Includes 1,50,000 lbs. of non-mulberry silk waste.

^{***}Non-mulberry silk waste.

TABLE 60. SILK-WEAVING.

Stat	State.			oms.	Annual produc	Annual production ('000 yards).		
ઝ ∙કૃ⊾ ⊎ .		Power-looms.	Hand-looms.	Power-looms.	Hand-looms.	Total.		
1			2	3	4	5	6	
*Mysore	••		8,000	7,634	3,600	4,000	7,600	
West Bengal	••			4,000	• •	2,280	2,280	
Jammu and Ka	ashmir	••	150	912	400	1,150	1,550	
Assam			• •	34,000	••	1,600	1,600	
Bihar	••	• •	25	1,000	144	684	828	
Madras	••	• •	• •	25,784	• •	2,190	2,190	
Bombay	••	• •	109	N.A.	430	N.A.	430	
Uttar Pradesh	••		22	25,000	100	4,600	4,700	
Orissa	• •	• •	••	4,000	••	528	528	
**Andhra Pradesh	ı	••	, .	2,500	• •	757	757	
***Madhya Prad	lesh	••	1	1,316		985	985	
Ton	r <u>a</u> l	•••	8,306	1,06,146	4,674	18,774	23,448	

*The looms are engaged in art silk also.

75.5. The Committee's special emphasis on silk rearing as a relief measure.—In spite of the protection afforded to the industry for a quarter of a century and in spite of the volume of progress made, the cost of production of yarn continues to be rather high. It is found that the price of high grade Indian yarn is still Rs. 32 per pound as against the landed price of Rs. 19.52 of the imported yarn of the same or even superior quality. But the industry has been built up on such a scale already that there is no likelihood of Government allowing it to decline. Moreover, whatever happens to the processing levels in the structure of the industry, the rearing of the sturdier varieties of the worm and the collection of the wild cocoon enjoy natural protection in the sense of being part-time occupations in which the question of cost and of price do not count very much. We, therefore, emphasise the employment value of silk rearing. Of course, it does not mean that we minimise the value of the spinning and weaving sectors which would certainly lend further support to silk rearing and provide direct employment by themselves.

76. Artistic handicrafts.—A small amount of additional employment can be created by developing the production and marketing of articles of artistic value which can be sold in urban markets and also exported. For the development of such an industry some existing talent or tradition is necessary. In Bihar, the following traditional crafts may have scope for expansion in rural areas:—

- (i) Brass-ware, particularly of adivasi designs.
- (ii) Stoneware.
- (iii) Siki goods.
- (iv) Lac-painted wooden goods, including toys.
- (v) Zari, lace and embroidery.

^{**}Few of the looms use power.

^{***}The looms weave tassar silk fabrics.

It will be necessary to set up an adequate purchasing organisation and to supply suitable new designs and necessary working capital to the artisans.

It has, however, got to be remembered that the market for these goods is limited and consumer preference is very often fickle. These factors necessitate that (i) the plan of expansion is carefully chalked out within these limiting factors, (ii) a ceaseless study of the market and consumer, preference is kept up and (iii) special attention is devoted to designs, as is being done.

- 77. Embroidery work.—Large quantities of embroidered stuff are imported in this State from other states. It is a well developed industry in many cities in the Uttar Pradesh and in the towns and villages in the Punjab and Kashmir. The remuneration of the actual workers is not very high but it is the hereditary occupation of a fairly large number of families. The work requires a high degree of skill. There is, however, scope for encouraging its expansion in those towns where the tradition of this occupation already exists or has been growing up of late through the skilled refugee families from the Punjab. Recent trends in the taste and fashion of women show that there is considerable scope for the employment of women and families in the industry.
- 78. Ready-made garments.—We have given more details about this industry in the chapter on the Employment of Women.
- 79. Knitting.—Knitting is a versatile industry with very wide scope for a large variety of artistic and utilitarian goods. It has withstood the competition of machinery and larger industrial units all over the world. We also note that many kinds of gadgets for knitting are available and should be utilised. We have come to the conclusion that it is pre-eminently suitable as a family craft for women in the growing urban areas. But we also find that appropriate marketing facilities, publicising of changing designs and of improved appliances are necessary. Moreover, some of the raw materials are costly and only some form of organised effort to foster the occupation as a regular source of employment can enable it to provide appreciable employment. It should be able to thrive in the urban areas as a subsidiary occupation of women.

80. HAND-POUNDING OF RICE.

- 80.1. Its strong position due to consumer preference.—Hand-pounding of rice is an example of how a village industry may survive on the basis of consumer preference. In South India, hand-pounding has been completely eliminated by the rice mills. But in the North, consumer preference for hand-pounded rice accounts for the continuance of the occupation of *Dhenki* dehusking. It enjoys a natural protection on account of the higher price willingly paid by the consumers. We lay emphasis on hand-pounding because the remuneration earned in this work is more liberal than that in *charkha* spinning and in many other village activities. The work may not be regular as a source of employment, but by its very nature it is a spare time one performed generally at night or in the early hours of the morning.
- 80.2. The rate of earning.—A team of two women working in spare hours at night or in the early hours of the morning can pound one and a half maunds of paddy a day. The work is fairly strenuous and also involves the labour of collecting fuel twigs and leaves for par-boiling the paddy and of par-boiling and drying it. The standard system of payment is that the working women undertake to deliver one maund of dehusked and cleaned rice for every 65 seers of paddy.

The usual output is one maund of rice for one and a half maunds of paddy. Hence, a team of two women earns five seers of paddy. This gives each one

an income of a rupee a day and compares quite favourably with the earnings in other village occupations. Even if we make a liberal allowance of one-third of the production of paddy to be used for seeds and by the mills, hand-pounding of the remainder would account for employment worth about ten crores of mandays and an income of about ten crores of rupees in the year.

- 80.3. Chura-making.—For handling the same quantity of paddy for making chura, it requires the work of three women and the job is more painstaking and skilled. Moreover, for every maund of chura a larger quantity of paddy is to be processed. Hence, the remuneration earned may work out at a slightly higher figure.
- 80.4. The present condition and prospects of hand-pounding.—Need of protection.—We have already noted how a team of two women working on one country Dhenki can pound one and a half maunds of paddy. We have come across a statement that the Assam Dhenki can process five maunds of paddy a day into rice. As far as we know, this Dhenki has not received the attention it deserves in view of its employment value as well as the threat to hand-pounding from the milling industry. Apart from the regular mills, the small huller presents a greater threat to hand-pounding because it can invade the villages on a large scale. Each huller is capable of handling fifty maunds of paddy, thus of putting out of employment about 64 women against each huller. Although the consumer preference for hand-pounded rice is an automatic protection, there is no doubt that the encroachment of mills and hullers may reduce, pari passu, the scope for hand-pounding. The encroachment of the labour saving machinery is very often quite unobstructive. The Committee has noted with concern that while the attention of the Government has been devoted to the protection of hand-pounding of rice, hand-pounded chura has been completely driven out of the market by milled chura imported in large quantities from other states.
- 80.5. Recommendations.—(a) We recommend that both for nutritional and employment reasons no further increase in the number of rice mills and hullers should be permitted except for special reasons. It is also recommended that, as in the case of handlooms since 1956, every huller should be registered before it can operate so that a mushroom growth in the hulling business may not kill the hand-pounding occupation. No further electric connections, without special sanction of the Government, be given for rice hullers.
- (b) We draw the attention of the Government specially to the displacement of the hand-pounded *chura* from the market and recommend that measures may be adopted to restrict the milling of *chura* though it may be impossible to control its import from other states.
- (c) Since the consumer has shown a preference for the lighter, thinner and more finely processed *chura*, Government may be pleased to undertake or to request the Village Industries Research Institute of Poona to devise an improved *Dhenki* and work out better methods of parboiling paddy for making finer qualities of *chura*.
- (d) We also recommend research for improving the capacity of the rice-pounding *Dhenki*.
- 80.6. Hand-pounding of rice in the scheme of the Khadi and Village Industries Commission.—This industry is on the list of the village industries already approved for protection and encouragement. We are noting below our views on the measures included in the scheme of the Khadi and Village Industries Commission.

The direct help offered consists of a 50 per cent subsidy on stone *chakki* up to Rs. 20, the same rate but up to Rs. 25 for Assam *Dhenki* and a similar percentage on winnowing fans up to Rs. 60. Our enquiries show that the industry is carried on mostly by poor women either working in the premises of the cultivators or taking home the paddy for delivering back rice. It has been urged that while the Assam *Dhenki*

may be suitable for the better off cultivators for their own homes, the Chakki Dhenki requiring an average of 6 persons and husking 43 tons or about 1,200 maunds of paddy in a year is only suitable for the large cultivators or small separate enterprisers. The Commission contemplates the latter type of chikki as suitable for co-operative enterprises. We, however, do not think that the class of poor women who are engaged in the occupation can be so organised. In view of all these data placed before us, we recommend it to the Bihar State Khadi and Village Industries Board that a more useful policy suited to our conditions would be to prevent further licensing of hullers and rice mills and to protect the Dhenki system worked by women which is surviving on the merit of consumer preference. As may be noticed from the general trend of our report, we are most anxious to preserve marginal and relief self-employment in the transitional period of our economy. We, therefore, advocate strongly that even the fostering of the large chakki Dhenki may be encouraged only in the large surplus paddy pockets near industrial centres where there is no adequate supply of labour for the traditional Dhenki.

We also find that there is a provision of subsidy of 37 Naye Paise per maund of dehusked paddy. We do not think such a subsidy to be necessary in the typical paddy growing regions of Bihar. The benefit is likely to go only to a few of the *Chakki Dhenki* and Assam *Dhenki* operators as it would be impossible to administer it for the benefit of the lakks of scattered women engaged in hand-pounding.

If it is considered necessary to help this class of scattered workers a more easily manage able method would be to raise their remuneration by about 5 per cent through the efforts of the Labour Department and the good offices of the Agricultural Labour Inspectors.

81. THE KOLHU OR GHANI.

81.1. General remarks.—We need not look upon the kolhu business as a relief measure and it has got to be fostered as a durable feature of our rural and urban economy. Consumers are prepared to pay a higher margin of price for Ghini oil if it is available. This consumer preference compensates to a considerable extent the loss due to lower extraction by the Ghani which is reported to leave as much as 12 to 13 per cent of the oil in the cake. The oil which is left in the Ghini oil-cake may be extracted again by the solvent process. One flaw of the Ghani industry is that the large percentage of oil left in the cake is considered to lower its value as a cattle feed as it renders the cake less digestible. Appreciable progress in the design of the Ghani has been made to increase its extractive power and lower the cost of working. Efforts for further improvements are being continued. The main difficulty of the Ghani industry in Bihar is the fact that the local supplies of the edible oilseeds consumed in Bihar are not sufficient. Thus a regular supply of oil-seeds is necessary to make the industry work efficiently. The committee has noted that, so far, the use of the improved Ghanis is confined to the institutions concerned with village industries. It is necessary to take measures to popularise it with the professional Telis. Moreover, private persons should also be encouraged to take it as an occupation along with improved bullock-driven chakkis. In view, however, of the increasing demand for all kinds of edible fat as the income of the people increases, it does not appear to the Committee desirable to recommend the banning of the small powered oil-mills as the Ghanis alone cannot meet the demand of the consumers. We would rather prefer that the Ghani extraction is improved to a level which can make it stand on its own legs.

With regard to the employment in the Ghani industry, it has been checked by us that the estimate of the scope for 40,000 Ghanis in the State is approximately correct.

81.2. The Kolhu in the scheme of the Khadi and Village Industries Commission.—This is one of the industries in the list of the Khadi and Village Industries Commission for development. The Bihar Khadi and Gramodyog Sangh has made good progress in this respect in spite of the special difficulty with regard to the supply of edible oil-seeds.

The scheme provides both for small independent units eligible for a grant of Rs. 150 as well as for large enterprises eligible for grants of Rs. 1,500 and Rs. 5,000. All these grants are to the extent of 50 per cent of the capital required. Thus the scheme makes both the traditional oilmen as well as larger enterprises eligible for grant. There is also a rebate or subsidy on per maund of sale or production of oil.

The scheme also includes the manufacture of improved Kolhus which is being carried on at Hansa in Darbhanga district.

82. Biri manufacture.—Unemployment in this industry has avisen in certain areas because of the reluctance of the owners to pay the minimum wages for labour fixed under the Minimum Wages Act. From what is known of the profit margin, it seems to us that the proposed minimum wages are within the capacity of the industry to hear. We commend the experiment that is being made by the Labour Department of running a Co-operative Biri Manufacturing Concern in Biharsharif. We suggest that the organisation of similar co-operatives should be taken up, wherever b ri workers have been laid off in large numbers. By this method it should be possible to maintain the level of employment in the biri industry. We find that it is typically suitable for being a house industry or hand trade if the supply of raw materials can be assured. Moreover, although we find that the biri workers are mostly men, it is typically an industry for women as it requires the definess of the fingers which is considered in the West to be a quality in which women are superior to men.

83. TODDY TAPPING.

- 83.1. Statistics of the resources.—The Committee has collected some detailed data on the subject but only certain relevant aspects of this industry are being examined here very briefly. There are 25.45 lakh palm and 21.13 lakh date-palm trees in Bihar making a total of 46.58 lakh trees which have been counted officially and are in the list of the Excise Department. But there is another appreciable number of trees over and above this list which are not exploited. Out of the registered trees, about 12.7 lakh, made up of 6 lakh palm and 6.7 lakh date-palm trees were tapped in the year 1956-57. Thus roughly 25 per cent of the trees are tapped every year. In the year 1956-57 there were 11,244 licensed Gaddis or vending shops for fermented toddy.
- 83.2. Employment.—The magnitude of employment in the business can be calculated on the following data to show its importance to the labour market force. The palm tree is tapped twice a year and the date-palm only once. Every ten trees tapped employs one tapper and one earrier for collecting the toddy and carrying it to the Gaddi. Normally, each Gaddi engages about ten tappers and ten carriers. Each Gaddi gives employment to one contractor and to one Munshi or writer as well as to one assistant as vendor. The toddy industry is a source of income to a number of parties. It brings revenue to the Government, rent to the tree-owner, profit to the Gaddi contractor and wages to the Gaddi attendant, the tapper and the carrier. Sometimes the Gadd is managed by the Pasis as a family enterprise.
- 83.3. Neera and palm-gur.—In view of the declared policy of the Government to adopt a phased programme of prohibition, the Committee recommends that this measure should be introduced only in step with and parallel to the introduction of measures for the alternative utilisation of the material and human resources involved. A beginning may be made by an experiment in the setting up of licensed Neera shops as

alternative to the toddy Gaddis with appropriate safeguards against the use of Neera for fermentation. Similarly, efforts may be made to expand the volume of work done so far departmentally or officially in the utilisation of palm juice for making syrup, gur and white sugar by arranging private enterprise to take it up as a regular business. It is not possible to cover the entire State by departmental efforts alone as pursued so far in the gur-making business.

- 83.4. The palm-gur industry in the scheme of Khadi and Village Industries Board.—This industry has been very rightly receiving considerable attention of the Khadi and Village Industries Commission. By now the industry has built up a long record of experience in Bihar. It has been an old traditional industry in many parts of Bengal. The Handbook of the Khadi and Village Industries Commission supports our own finding, noted in Chapter VIII, that "palm trees can help to prevent soil crosion" even though the idea has not as yet been adopted by the Forest Department and other soil conservation agencies. The programme of the Commission provides for the establishment of research and training centres, pilot stations, and grants as well as loans to co-operative societies and institutions for gur manufacture.
- 84. Fruit and vegetable preservation and dehydration.—There is good scope for work in the processing of fruits and vegetables in the forms demanded by local taste for domestic consumption or local markets. It is difficult for domestic production to gain a footing in the wider market, which looks for high finishing and packing qualities as well as for guarantees of hygienic conditions of production. But small-scale production for local consumption itself is of great value in the aggregate and the popularisation of the art and methods of domestic canning and conservation should be taken up by the Khadi and Village Industries Board. The Department of Agriculture has already achieved a considerable amount of success in working out various methods of fruit and vegetable processing but it has not got the machinery to publicise it and train village people in the art. It is hoped that the Community Development Block agencies may now be utilised for the purpose.
- 85. Manufacture of buttons.—The mother of pearl button industry is an old and established one localised in Mehsi in Champaran. Employment in it has fluctuated about the figure of 400 persons. The industry has attained a high qualitative level but was seriously hit by imported stuff and the competition of other varieties of buttons. It is a clear example of an industry ealling for protection against foreign competition. Moreover, the financing of marketing also calls for help to enable the small producers to hold their stock. The raw material used is also suitable for various other artistic manufacture to which the expert advisers on handicrafts may pay attention.
- 86. Mica Splittings.—A sharp decline in the foreign demand for split mica is reported to have occurred in 1954-55 resulting in growing unemployment in the industry. For this industry also we consider that short-run stabilisation through controlled marketing would alleviate some of the distress. We support the scheme for the establishment of an All-India Mica Marketing and Development Corporation. Such a corporation should have compulsory powers of inspection and grading to prevent unscrupulous trade practices which adversely affect the demand (for Indian mica. The Corporation should have sufficient funds to eliminate seasonal price fluctuations and consequent laying off of workers.
- 87. Lac growing and shellac manufacture.—After a serious set back shellae prices rose again in 1955 due to improved demand in the world market and unemployment temporarily disappeared in the more organised sector of the industry. The very small units, however, were not at all able to restart

and take advantage of the high prices. We are informed that lines of agreed policy and an integrated programme of assistance to the shellac industry were worked out in a conference of the Central Government and the interested State Governments. Apart from long-term measures like the development of new lac hosts and the establishment of industrial units for the domestic processing of seed-lac and shellac we suggest that certain short-term measures are necessary to protect the workers in this industry, as far as possible, from the effects of price fluctuations and malpractices by shellac exporters. The measures suggested are—

- (a) Organisation of co-operative societies or associations of small producers and loans to these societies for serving as marketing funds;
- (b) The establishment of testing and grading facilities for seed-lac and shellac, i.e., a state-operated quality control scheme for exports.

88. Blacksmithy.—The existing Vishwakarma Co-operative Societies appear to have become almost defunct upon the decontrol of almost all varieties of iron and steel. Many of these blacksmiths are often not even part-time employed in the trade. Revitalisation of these co-operative societies may follow the same pattern which has proved successful in the case of weavers' co-operatives. In view of the proposed ban on increase in the capacity of large factories, a scheme for the production and distribution of improved agricultural implements on the lines of the 'War Supplies' scheme or the scheme for the supply of rabu pumps would result in an appreciable increase of employment. The possibility should be examined of organised production of carpenters' tools pruning knives, building hardware, components of railway equipment and cutlery items through these co-operative societies.

We note that in the West the older trade of smiths and wheel-wrights has been revived in a new form as a flourishing handicraft in repairing and servicing rural and urban economy on new lines. The mechanisation of agriculture there has created a new demand for smiths. We believe that if proper training facilities are provided, a new class of smiths using improved tools and methods would grow up to service the newer appliances which are being increasingly used in the rural and urban areas. Moreover, we have noted how the expansion of constructional activities would continue to grow with the growth of the economy. This is another reason which may help to revive the trade of the smiths. The subject has been considered in the section on light engineering also because we desire that the traditional blacksmith families should be retrained for their new responsibilities in a technological economy.

89. Carpentry.—It should be possible to train more carpenters in villages and provide them with working capital by co-operative organisation or otherwise. Apart from the traditional lines of employment, the carpentry shops may be so organised as to supply door and window frames to Government building projects in rural areas like National Extension Service headquarters, primary schools, social education centres, health centres, etc. We have earlier stressed the necessity of a Government purchase policy oriented to this end. A low cost housing scheme, if launched in selected rural areas, would create fresh demand for carpenters. We have noted clsewhere in this chapter that we are not averse to the introduction of power-driven sawing as this would lower the cost of the materials used in carpentry and take off drudgery from human muscles. We have also noted in our sections on forestry how wasteful our lumbering methods are. Hence a more scientific and mechanised method of processing timber in the first stages is likely to lower the cost of the materials for the carpenters.

90. Brass and bell-metal industry.—Many villages, townlets and towns were in the past noted for their brass and bell-metal products locally or over wider areas. To a

considerable and an increasing extent the costlier and more artistic varieties of the utensils of the bell-metal industry are being ousted by stainless steel products and the cheaper ones by aluminium ware. There does not seem much chance of its expansion or progress except in the manufacture of ornamental and special ware towards which the industry is being realigned with the help of the Khadi and Village Industries Boards in Madras, Orissa and elsewhere. We have not been able to collect sufficient data on the subject and further investigations are called for. Special attention is invited for an enquiry into the lines along which the artisans may be retrained, the new varieties of alloys which may be used, the possibilities of introducing enamelling and inlaying and the problem of the supply of raw materials and improved appliances. We draw the attention of the Haudicrafts Board to these problems.

91. ARTISTIC AND UTILITARIAN EARTHENWARE.

- 91.1. Traditional utilitarian and artistic pottery.—There is little possibility of any appreciable number of the unemployed persons on land being diverted to this trade. Though these activities are not highly profitable they form the hereditary occupation of certain families and the pride which they feel in their work compensates, to some extent, for the humble income of the trade. It would be sufficient if the hereditary artisans are kept in employment. However, there is considerable scope for improving the design, quality and finish of the ware made by the potters. It is also possible to introduce some new articles. These measures would help to provide fuller employment to the potters. In certain places, the village industries centres have been making newer types of articles and practising salt-glazing. It is desirable that instead of being confined to organised centres, these innovations are adopted by the potters more widely.
- 91.2. The scope for some new lines.—It is, however, possible that as the improvement proposed to be spread among the village potters are adopted, the organised centres might take up new lines in the industry. It is possible that glazed and larquered clayware of educational value like relief maps, plaques of historical figures, etc., could be manufactured and thus build up a more stable market for the workers with ordinary elay. Such an attempt was noticed in a few of the Junior Basic Training Schools in the State, but it does not appear to have been pursued. Besides providing fuller employment for the potter class, the enterprise would be useful in contributing cheap visual aids for instruction. Of late, considerable attention is being devoted to toys as a medium for education and for developing the aesthetic sense of the children.
- 91.3. Pottery and earthenware industry in the development scheme of the Khadi and Village Industries Commission.—This industry is one of those which is being fostered by the Khadi and Village Industries Commission. There is a comprehensive programme of research and experiment. There are one central and three other training centres and four demonstration squads for the whole of India. The programme provides for financial subsidies for setting up production, purchase of equipment, share capital grant for co-operatives and grant for selling agencies. Stipends are available for training.

The Commission rightly proposes to encourage decentralised units as against mechanised ceramic industry units. Improved wheels, moulds and Bhattis have been brought into use along with the technique of glazing and painting. The products include ordinary utilitarian ware, toys and artistic articles, pipes, tiles, flooring and roofing bricks, etc.

The scale of work proposed is fairly elaborate and a common workshop unit is expected to cost Rs. 9 thousand. We, therefore, consider it to be a good small

enterprise. It is evidently beyond the reach of the traditional village potter, but if units are established at various places to serve a wider market than a mere village, the traditional potters may get employment in them or be inspired to learn and use improved methods and add new products. The Committee is not aware of the extent of the progress made in the establishment of the units in Bihar. So far as has been gathered, the scheme has been introduced at three intensive area centres in this State.

92. Roofling tites.—Brick making is an old and well-established business which does not require any discussion. By its very nature it is a decentralised occupation providing employment on an increasing scale with the growth of all kinds of public and private constructional work and increasing demand for brick-built houses even in the villages as the income of the people increases. But attention is drawn to the possibility of manufacturing roofing tiles known in Bihar by the name of Raniganj tiles. The industry is expected to create a fair amount of steady seasonal employment in laying and burning them. Although it will provide immediate relief for the unemployed, it can be established on a durable basis and can survive on its own strength. The first thing which the lower middle class people go in for. in the villages, after improved food and clothing, when their income increases is a brick-built house. Tile roofing would become popular if tiles become locally available. We refer to this trade for increasing the scope for further employment because it is not necessarily a hereditary occupation of the potters and some of the redundant population may find employment in it. In view of the high cost of concrete roofing and the fragility and recurring renewal costs of naria covered thatching, tile-roofing, it is believed, would become very popular. The data for the calculation of its employment potentials could not be collected. But it was gathered that roofing tiles can be made both on a small-scale by self-employed craftsman as well as in large factories. In fact it appears capable of bearing the cost of long distance transportation and large quantities of roofing tiles are exported to Ceylon from Kerala and Madras.

93. HAND-MADE PAPER.

- 93.1. Scope for the industry.—In view of the progress made in South India in the manufacture of hand-made paper and of the availability of various kinds of cellulose stuff in Bihar as agricultural wastes or in form of easily available reeds and grasses, investigation into the possibilities of this village industry in our State may be taken up. The Village Industries Research Institute at Poona is reported to have completed its researches into the implements, methods and quality of various kinds of paper manufacture on a village industry scale. It is reported that pulping processes and appliances for operation by hand have been evolved. It is claimed to have been demonstrated that high grade paper for permaneut records made by hand is superior to the mill paper while low grade paper, paste board and packing paper can be made more cheaply in the villages than in the mills. During the early deeades of the last century, paper making was a village industry in many parts of Bihar as we learn from the accounts in Buehanan's Travels. With the recent improvements in the methods and appliances noted above, it is recommended that serious efforts may be made to establish paper making on a wide scale as a village industry. Apart from employment in the manufacturing processes, the collection of farm wastes and reeds may provide relief employment for many poor people.
- 93.2. Hand-made paper in the village industries list of the Khadi and Village industries Commission.—We learn from the Handbook of the Khadi and Village Industries Commission that there are about 200 kinds of raw materials which can be used for pulping for the manufacture of paper on modest scales. The scheme of the Commission has in view various scales of manufacturing units ranging from the big unit requiring Rs. 60 thousand for capital, medium unit with Rs. 15 thousand capital,

small one with Rs. $7\frac{1}{2}$ thousand capital, home unit requiring Rs. $1\frac{1}{2}$ thousand, jail unit and school unit. Mechanical power for the larger ones and bullock power for the smallest ones are considered to be necessary. Thus, the industry is not snitable for very small men. The products of the home unit are very limited in range and this unit, too, requires some capital.

The industry has got seope for decentralisation both from the point of view of the supply of raw materials and consumer market. But in view of the capital required, it can become only an employer's enterprise and in this way it would be suitable for educated persons provided suitable marketing facilities are arranged for.

- 94. Rope making.—The manufacture of ropes of various types of high quality is not a trade which can be carried on in the villages. It is now a highly mechanised and organised industry. It would be enough if the local people in the villages continue to manufacture ordinary strings, twines and ropes for their domestic and local requirements.
- 95. Bamboo work and basketry.—We expect the demand for bamboo and basketry work to grow for various ntilitarian purposes on quite new lines into which unemployed persons may be diverted. No special efforts to sustain these occupations would be called for beyond providing facilities for the supply of raw materials and improving the design of the basketry for the specific purposes. We are not considering here the artistic varieties of bamboo work which may provide employment in urban areas. What appears possible is that the growth of neban areas and industrial towns may create a demand for fruits and vegetables and these would indirectly create demand for packing basketry work unless the produce is handled in bulk. Most fresh fruits and vegetables, however, necessitate packing in baskets to prevent deterioration. However, on account of the large and growing composite demand for bamboo from different sources, it may be desirable to look for other materials for the manufacture of packing baskets.
- 96. Cane furniture.—There is no likelihood of this industry being decentralised for providing employment in rural areas. But there is a demand for superior grade articles of furniture made from high grade cane and the industry may be started in some selected towns.

97. UTILISATION OF DEAD CATTLE.

- 97.1. Progress made so far and recommendation for further progress.—The All-India and the State Khadi and Village Industries Boards as well as the Khadi and Gramodyog Sangh have by now evolved very scientifically worked out schemes for the utilisation of dead cattle and have established a few centres for the work mainly as demonstration and training centres. But what the Committee thinks is that it is desirable to cover the entire State with a network of dead cattle utilisation centres. We recommend that a special section of the State organisations working for the development of the rural industries may be set up for this work. We gather that even before the separation of Pakistan, only 25 per cent of the hides and skins which were tanned for export or consumption came from the slaughter-houses and the rest were derived from dead animals.
- 97.2. A specific organisational programme recommended.—Estimating that the more portable stuff of the carcass can be transported easily within a redius of ten miles, we recommend one dead animal utilisation centre for every 400 square miles of the State subject to modifications according to relevant factors. We arrive at this size of the area to be served by a centre on the basis of the following calculations. An area of 400 square miles means that every place within it would be within ten miles

of the centre and the transport of the dead cattle or even its products can be managed cheaply and easily. The density of the cattle population in Bihar was 265 per sq are mile in 1951, and there has been an increase since then. But even according to the old figure, the cattle population per 40 square miles would be 1,06,000. A calculation of the last decade of cattle mortality puts it in Bihar at 12 per cent annually. But even supposing that cattle mortality has been reduced to the all-India level as a result of improved veterinary facilities, a mortality of 10 per cent would mean over 10 thousand dead cattle annually for every centre involving the handling, on an average of 28 dead annuals per day. This ought to provide a full scale employment in flaying, utilisation of offal (dead meat), bone, horn, hoof and skin for a big team. It should induce a good tanning industry at each place and provide employment in quite a number of lines, including the collection of vegetable tanning material. Moreover, every centre would create some employment for at least three educated persons for administrative work.

- 97.3. Transportation and flaying.—The valuable materials which could be derived from a verymoselarge number of dead animals are lost to the nation on account of the neglect in utilising them or by untimely and wrong methods of handling the carcass. Very often, the dragging of the carcass completely ruins one side of the skin. Exposuren without immediate attention leads to the other side being rendered useless by vultures. Then wrong methods of flaying make an enormous difference in the utility and price of the hide. In most cases the village flayer has got no money to buy a large quantity of salt and, therefore, dries the skin first. This practice of drying the skin damages its quality to such an extent, that no amount of future treatment can rectify it. For these reasons, it is expected that the establishment of centres for dead eattle utilisation would lead to an increase in the quantity of hides and skins of the right quality for previding increased employment. The handling of the dead animals in a systematic way would also enable other products of the carcass to be turned to economic use, as we shall see, and create employment in other lines.
- 97.4. Manure and lone-meal.—The art of converting the perishable offal of the carcass has been developed on very scientific lines and ean be put into operation without much difficulty after imparting the proper training to the workers. Besides, the digesting of fresh as well as dry bone provides the best kind of organic manure required in our country. The Committee was not able to collect all the data on these subjects. Among other things, it has not been possible to establish the reason why bone-meal manufactured in the mills at Calcutta, where the bone has got to be transported from distant places including Bihar with the load of the east of transportation of the raw material, can again be brought back and sold chesper here. The explanation of their being able to extract glycerine and other by-products may not be sufficient because the mills, too, handle dry bone and these derivatives may equally well be salvaged in the village digesters. However, the recommendation for the establishment of a well-organised chain of dead cattle utilisation centres is further strengthened by the fact that fresh bone and processing in large quantities may reduce the cost of production and enable superior quality of derivatives being reeovered.
- 97.5. Utilisation of horn and hoof.—Animal horn, specially of buffalo, is the raw material for the manufacture of a variety of utilitarian and artistic things. Combs, buttons, knife handles, walking sticks and various kinds of ornamental carvings have been made out of it for a long time. A few years ago, research was conducted in the physiological and chemical properties of horn as well as in its uses. It was established that all the waste which comes to 50 per cent of the horn while it is being processed may be utilised as a plastic powder in form of a phenol-horn composition for making button and other moulded articles. This research work does not appear to have been continued and there appears to be scope for further work

in discovering wider uses of animal horn. The fact that horn has been replaced by synthetic plastics and rubber in making most of the traditional ntilitarian articles points to the necessity of sustained research work in its utilisation. The use of horn for the artistic carvings alone, for which it is still in demand, may not be able to consume the large quantity of horn which can be salvaged by a systematic scheme of dead cattle utilisation. Hoof has got certain industrial uses, but research is necessary for finding more uses for this material, too, as in the case of horn.

- 97.6. Tanneries.—Any organised attempt to utilise the dead animals systematically would naturally lead to the establishment of tanneries on a large scale in between a number of centres or small ones at each centre. The art of tanning dead animal skin has attained a high level of efficiency and its wider application has got to be introduced systematically. The growth of this industry would provide employment for educated persons, for skilled workers and for many more in the collection of vegetable tanning stuff. We however, feel that the business needs greater attention of the Khadi and Village Industries Board than it has been receiving.
- 97.7. Leather Industry.—The use of leather for the manufacture of footwear naturally strikes us first though there are many other industrial uses of leather. These latter specialised industrial uses may be only possible on large scale in factories treating and using leather scientifically. But in spite of the mechanisation of the footwear industry, shoe-making still continues to be predominantly a handicraft. For the last few years the annual output of footwear has been about 95 million pairs of which only about 6 to 61 million pairs are manufactured in twelve large scale units, the rest being contributed by small scale units and handicrafts. It is, therefore, one of the selfemploying occupations which is standing on its own legs. The Small Industries Corporation is doing very valuable work for helping the small units by even arranging for quality standardisation and export of footwear made by them. It is possible to improve the quality of the village craftsmen if even a fraction of the organised efforts devoted to many other village industries is extended to it. Footwear along with ready-made garments is one of the consumer goods for which there is an immediate increase in demand whenever there is an increase in the income of the people. The immense potential demand for shoes is shown by the fact that, if we calculate it on the basis of the production and export of footwear in relation to our population, we find that less than one out of every four persons buys a pair of shoes every year. Thus there is no possibility of any over-production. It has also been found that most of the hand workers even in the rural areas have learnt the art of making various kinds of footwear in general demand whose quality could be improved very easily by a short training of these craftsmen. The extent of additional employment which may be created in this branch of handicrafts can be easily calculated on the basis of what has been said about the demand.

98. Soap-making.

- 98.1. Soap-making with non-edible oils.—The experience of the training-cum-production centres in soap-making indicates that washing soap can be produced economically in rural areas and sold in local markets. As the capacity of the large units is likely to be restricted, there would appear to be scope for the establishment of a large number of production centres. To the extent that locally available oil bearing seeds like neem and karanj can be utilised ancillary employment is created by organising its collection by poor women and children. Thus the village soap industry would create another useful relief occupation.
- 98.2. Non-edible oil soap industry in the scheme of Khadi and Village Industries Commission.—It is one of the industries listed for development in the villages both

on account of the spread of the demand as well as for utilising the local raw materials. The Handbook of the Commission brings the need of economising in the use of edible oil, employment in the collection of neem, karanj, mahua and other seeds and in pressing them for oil. The Commission in this respect, too, thinks in terms of small integrated enterprise or co-operative units with a capital of Rs. 6 thousand for each and provides for an outright grant of Rs. 3,000 and an interest-free loan of Rs. 3,000. Grants and loans for larger units costing Rs. 54,800, Rs. 21,700 and Rs. 16,400 are also provided for. Evidently the industry is more suitable for the cottage scale of operation than for family employment according to the more organised scheme of the Khadi and Village Industries Commission.

99. Saltpetre.—It may be that the manufacture of saltpetre can only be revived as a relief measure. The Committee came across reports that even now the Nunias of some places take up saltpetre manufacture during the slack months when they have got no work. There is no doubt that the natural resources in form of the saline earth in the villages of North Bihar are still there as they were in the last century. Even in 1860, India exported some 35,000 tons of saltpetre. By 1914 the output had come down to 13,000 tons but the First World War led to some revival. The Committee has not collected sufficient data on the subject, but investigation into the economics of this village industry may be useful.

100. Cottage match industry in the scheme of the Khadi and Village industries Commission.—The Handbook of the Khadi and Village Industries Commission says that if small units of the match industry for 100 gross per day are set up, each one would provide employment for 15 times the number employed in large factories for manufacturing the same number and double the number of men who find occupation by making matches out of machine made splints and veneers. It is computed that a 25 gross daily capacity factory would provide employment for 38 persons. But in such a 25 gross unit, it may be possible to engage only 5 persons in the factory and give out the remaining operations as family work providing part-time employment for 54 persons. The Commission provides stipends and facilities for training and liberal subsidies for enterprises which are proposed to be set up.

We consider this industry to be quite suitable for educated persons with small capital but enterprising spirit. A number of merits of the scheme may be noted. Matches are articles of daily use and decentralisation would be quite appropriate. The Handbook of the Commission points out that if local materials are utilised there would be a saving of soft wood for more urgent needs and the cost of transportation of wood would be saved. We think that this industry would be suitable for enterprising youngmen and would provide considerable scope for growth according to the organising capacity of the enterpriser. We further think that it should also be considered for providing family employment in urban areas by the method of decentralised contract system as noted above.

- 101. Other village industries.—We have dealt with a number of other rural occupations in the chapter on the primary sector because they are integrated to the rural economy. Hence we are not repeating them in this chapter. These are
 - (i) Bee-keeping.
 - (ii) Sugarcane-crushing.
 - (iii) Lac growing (as distinct from the processing of lac).
 - (iv) Silkworm rearing.
 - (v) Polutry farming.
 - (vi) Dairying.

102. Schemes for small-scale and cottage industries.—The Small-scale and Cottage Industries Unemployment Sub-Committee has appended in its report very carefully worked out detailed schemes for a large number of small-scale and cottage industries which are just of the types in which Bihar is deficient. All these have got the additional merits of being suitable for educated persons and for small capitalists. Besides, they are eligible for loans under the State Aid to Industries Act and can be established on a decentralised basis. Selections can be made out of them for locating them in rural areas or in the growing industrial townships according to their suitability.

A separate mention of another merit is necessary in view of the great dearth of enterprise in this State. These industries are just of the type which have served as the nursery of business enterprise, risk taking attitude and managerial ability in all the advanced countries in the early stages of growth. They have all got the scope for expansion in the hands of able entrepreneurs and may grow into larger units as the proprietor gathers managerial experience and experienced team of workers around him and as he gains in self-confidence.

We, therefore, recommend model schemes to be set up under practical business conditions and a wide publicity being given to them. Perhaps the growing industrial townships would be the most appropriate locations for some of these model enterprises selected according to their nature. Others may be more suitable for demonstrations in the areas of dense rural population with large markets as North Bihar.

The following schemes with technical and capital cost details are included in the appendix of the report referred to:—

- (i) Manufacture of cast iron soil pipes.
- (ii) Chrome tannery for making cow and calf upper leather.
- (iii) Barbed wire manufacture.
- (iv) Small-scale Chappal production with a daily capacity of 150 pairs and using 2 H.P. (Horse Power) unit of energy.
- (v) Manufacture of cycle leather saddle tops.
- (vi) Manufacture of brass utensils.
- (vii) Manufacture of malleable cast iron.
- (viii) Small-scale gents' shoe production with 2 Horse Power and 60 pairs a day.
 - (ix) Small-scale fruit preservation.
 - (x) Manufacture of radio components.
 - (xi) Small saltpetre refinery.
 - (xii) Manufacture of panel pins and wire nails.
- (xiii) Manufacture of machine screws.
- (xiv) Manufacture of electrical accessories.
- (xv) Electroplating establishment.

CHAPTER XI.

Employment in the Economic Overheads and Public Utilities.

- 1. The concept and meaning of economic overheads.—Production and servicing are carried on by individual enterprises. Even in a planned and regimented system the economy functions through separate technical and managerial units like the factories, workshops, farms and corporations. But this separation of units necessitates two things. Firstly, the entire economy has got to be integrated by a system of transport and communications into a mutually sustained system of local, national and even world economy. Secondly, there are certain common services including those of the transport system which cannot be arranged by each enterprise for itself as a part of its internal economy. In such an integrated economy the effectiveness of the productive efforts of each entrepreneur or enterprise depends not merely on the efforts within the enterprise, that is, of a farmer on his holding, of a middleman in the shop, of a master craftsman in his workshop or of a managing director within his factory but also on whether a number of common facilities or economic overheads or of external economies are available or not. The productive effectiveness of a farmer's efforts are increased by an irrigation system and marketing facilities for buying and selling as much as that of a manufacturing unit by the facilities of the supply of raw materials, of the sale of the finished products and of the transport system. These common facilities or economic overheads may grow up in response to the demand created for them in a market or free economy. But such an adjustment of demand and supply takes time. Hence in a rapidly growing economy or where the economy is planned, these common facilities have got to be visualised, estimated and provided for by the state.
- 2. Varying levels of the specificity and generality of the overheads.—We have observed in the previous chapter in connection with employment potentials in industries that these overhead or common facilities may relate to—
 - (a) different industries separately like that of irrigation for agriculture or supply of cheap electrical power for electrolytic processes in the metallurgical and chemical industries;
 - (b) different localities like the supply of process water;
 - (c) the entire economy, like the facilities for the transport of goods, value and information.

We may cite an example of one of the most generic overheads here. It has been calculated that in the advanced countries in which technology is already so highly developed that all further growth depends on the ceaseless efforts of those engaged in creating innovations and new formulae, 20 per cent of the work force is engaged in fundamental and operational research, in experiments, in pilot and field trials, and such activities. To go even a step higher, the political and the social system, too, are very powerfully operating overheads in bringing out the full potentialities of the economy. A political system may be adjusted to the temperament of the people or may have to adjust temperament to the system for bringing out the full productive potentialities of a community. We are, however, considering in this chapter only the more concrete economic overheads which service and integrate the economy as a whole or its large sectors.

It may be noted that we have used the term economic overheads with a view to bring together in this chapter the industries known as public utilities as well as others

which are not formally known as such but bear all the characteristics of public utilities. The following economic services are being considered here:—

- (a) Such irrigation works and services as are provided and managed as common facilities.
- (b) Water-supply: industrial and non-industrial.
- (c) Generation, transmission and distribution of electrical energy.
- (d) Transportation services by-
 - (i) railways,
 - (ii) roads, and
- (iii) waterways.
- (e) Communications or transportation of information by postal, telegraphic and telephonic services.

We are not considering coastal shipping as Bihar has no such facilities. Nor we are considering transportation by air as its employment value as yet is small. Transportation of value or purchasing power through banking service has been considered under commerce.

- 3. The constructional and operational aspects of the overhead industries and services.—
 In our chapter on the Secondary Sector, we have considered the constructional aspects of all industries in so far as information is available. We may refer to them for the sake of comparison with the employment aspect of the operational activities though our main concern here is with the latter. It may also be mentioned that from the employment point of view we have considered the subject of maintenance along with that of construction because both of them require the same kinds of labour. But from the point of view of cost accounting, the constructional outlays are capital investments while the maintenance charges are debited to revenue accounts.
- 4. Employment in irrigation works.—Improvement in the irrigation system would naturally lead to increased intensity of farming and thus to more ample employment. This result would follow from the adoption and progress of every method of irrigation by the major irrigation canals, tube-wells, tanks, and wells. But in this chapter we are considering only the direct employment in the operation or running of the irrigation works as an economic overhead. The employment value of irrigation in giving rise to intensive farming has already been considered in the chapter on the Primary Sector.
- 5. The Canal System in Bihar.—Out of the 275 lakh acres of cultivable land in Bihar, only 8 lakh acres were irrigated before the First Five-Year Plan by the Sone, Tribeni, Dhaka and Teur canals making a total of 1,889 operational mileage. The Tribeni Canal Extension, completed in 1957, has added 62 miles to the System. The Damodar Valley Corporation Irrigation canals lie outside the boundary of Bihar. The Kosi scheme has been continuing from the first plan period and the approximate cost is estimated at Rs. 4,459 lakh. It is primarily a flood control scheme but the irrigation and power schemes as well as the total cost mark it out as one of the major river valley projects in India. The Gandak Project is expected to be another large multi-purpose river valley project with a greater emphasis on irrigation. In the constructional stages these works would continue to account for a large volume of employment, but the final shape of the irrigation systems is not as yet clear.

The other class of irrigation works serving as overheads in limited areas are the tube-wells. During the first and the second plan periods about 3,000 electrified tube-wells would be in commission. These are being managed by the Electricity Department of the State.

6. Employment in the irrigation works.—The Census Sub-Division 5.4 of 1951 of the non-agricultural workers gives the number of those employed in "Construction and Maintenance—Irrigation and other Agricultural Workers" as 1,426. The meaning of this heading is not very clear and perhaps original construction work is not included as no such work was in progress. It is likely that the figure includes those maintained on the permanent staff for supervising the annual dredging, scouring and similar activities. The total number, however, is small and the addition of 62 miles to the Tribeni canal would not add much to this figure. It is, however, likely that this figure does not include the number of workers engaged through contractors for annual repair and maintenance activities.

About 3,000 tube-wells have been commissioned during the decade and the employment at the tube-well stations themselves is likely to be a multiple of this figure and much above the number given for the irrigation works in 1951. The figure of employment at the tube-well stations and the channels are not included in the figures of employment in the Electricity Department and we have not been able to get separate figures.

- 7. Water-supply services.—Water, like electricity, is an important consumer as well as producer commodity. As the subject of irrigation has been considered separately, we may consider here water-supply as an economic overhead for the following purposes:—
 - (i) Public water-supply for domestic purposes as a consumer servicing, and
 - (ii) Process water-supply as a producer commodity for industrial uses.

We are familiar with the subject of domestic water-supply. The supply of process water is becoming increasingly important as a result of the growth of heavy industries which require enormous quantities of water for various processes. Among the large consumers of process water are the metallurgical industries, heavy chemical and fertiliser industries, coal washeries, pulp and paper industries.

The concentration of population in the urban areas and industrial townships has been increasing the demand for the construction of waterworks and their maintenance.

8. Sources of water-supply.—The large quantities of water required for all these purposes have got to be met from different sources according to the conditions of availability. Among the different sources are the natural and artificial lakes for impounding rain water or water coming through river channels, dams and tube-wells. In the plateau region of Bihar the supply of water both for consumption and for industrial processes has been one of the objectives of the river valley projects. There are other small reservoir works specially meant for water-supply for urban areas. Most of the large industrial concerns have had to arrange for their own water-supply works. The Government of India have also been surveying the sub-terranean water resources in different parts of the country mainly for agricultural purposes. But they would be of very great use in the hilly regions in which most of our mineral resources occur and where industries are developing. Evidently, the supply of water as a consumer commodity as well as for industrial purposes is of vital importance as an economic overhead in all the industrial townships which have been growing up. Moreover, the rate at which urbanisation has been going on also entails the expansion of the existing urban water-supply services and the construction of water-supply systems. In the plateau region the supply system has been calling for the construction and maintenance of large reservoirs at places far away from the consuming centres. Hence systems of channels and pipes have got to be constructed and maintained for carrying them. In case of water obtained by boring, pumping stations have got to be built and maintained.

9. Employment in the water-supply services.—We have not got data for calculating or estimating the volume of employment in the water-supply services in the comprehensive sense in which we have formulated this overhead. We do not know either whether the personnel employed on the waterworks of the large factories are returned as in-plant employees or not. Sub-Division 5.6 of the Census tables for non-agricultural workers claims to give the figures of employment in works and service of domestic and industrial water-supply. This figure was 1,148 in 1951. We can only guess that this number must have increased very greatly since 1951 in view of the urban and industrial development and the increase in the supply of electrical energy.

10. The Role of Power.

- 10.1. Growth of man's command of power resources.—The energy or work capacity of an average man has been rated at only one-teuth to one-eighth of a horse-power, and this too cannot be excrted continuously like that of a machine. The earliest external source of energy to aid man's puny arms was that of animals. The use of fire was discovered still earlier, but it was not used as power in the sense in which we are using the term. Mechanical power charged in the bow-string or utilised by the use of simple lever or in the rotary motion of the potters' wheel came to be known quite early in history. The use of the power of wind or of running water to impart a rotary motion to various appliances came to man's aid much later. But it was the invention of the steam engine which started the revolution of the modern age. Electricity was discovered at about the same time that the steam engine was being invented. But the use of electrical energy had to wait until the inventions of the various appliances for generating, storing, transmitting and using electrical energy. As these appliances were improved, electrical energy tended to replace the other forms of power, and today, we can measure the productivity and economic progress of a community in terms of the electrical energy used per head of the population or of the working population. It is clear that productivity per head of the work force would rise in proportion to the quantity of power used.
- 10.2. Use of electrical energy as a measuring rod of economic progress.—We may thus explain the backwardness of India and of Bihar in terms of the electrical energy generated and consumed. It was estimated that at the start of the First Five-Year Plan, the average consumption of electricity in India per capita was only 13 units (by another estimate only 10.1 units) and for Bihar it was variously estimated to have been between 2 and 2.95 units per head before 1951. As against these figures, the consumption of electrical energy per head in other advanced countries is given at 570 units in Japan, 1,200 in U.K., 2,500 in U.S.A. and 5,000 in Canada. The installed capacity for the whole of India from all sources was 1,835 thousand K.W. in 1951. A comparative figure for 1949 gives the installed capacity in West Bengal to have been 417.6 thousand K.W. and in Bihar 34.6 thousand K.W. only. All these figures show the great leeway which India in general and Bihar in particular has got to cover. Economic progress and the demand for electrical energy has made us aware of the deficiency which was not felt before while the economy was stagnant or only growing very slowly.
- 11. The supply of electrical energy as an economic overhead.—Before the coming of electricity, the supply of industrial power was a question of the internal economy of a factory and was generated by steam-engine or by internal combustion engine. The inventions of the electrical generator and of transmission and distribution appliances have made the supply of power an important economic overhead not only for the purpose of driving machinery, as was done by steam, but also for electro-chemical and electro-metallurgical industrial processes. Moreover, power is both a producer as well as a consumer commodity, the latter for various domestic purposes for light, fan, dish-washing, home laundry, refrigerators, etc. It is also one of important amenities

for a community for various purposes of street lighting, dewatering, water-supply, etc. Thus it is not only an economic but also a social overhead. As has been stated at another place, electricity has also reversed, in certain manufacturing industries, the process of the elimination of the master craftsman and house industry by the steamengine of the early days of the Industrial Revolution.

- 12. Relative economies of thermal and hydel power.—The two main types of power or electricity generating industry are thermal and hydraulic. The thermal generators may use coal or diesel oil. The hydraulic generators use the mechanical force of falling or flowing water for driving a turbine for generating electricity. There is no absolute standard for measuring the economy of the one against that of the other. The cost of production by either method depends on a number of controlling factors making the one or the other cheaper under given conditions. We shall examine their comparative economies when we look into the factors of the supply of electrical energy in Bihar from the alternative sources.
- 13. Position and prospects of power supply in Bihar.—The total supply of electrical energy in this State is made up of the power generated within the industrial units and the power supplied by the electric supply companies. The latter, again, is made up of the supplies from the private licensees and those from the power plants under the State Government managed by the Bihar Electricity Board which also distributes the energy purchased from the Damodar Valley Corporation and other large power stations. Finally, there is the category of the quasi-government corporations like the Damodar Valley Corporation. We have already noted the importance of power for the productive efficiency of an economy. The Planning Commission at the very start realised the need of a large scale development of the supply of electrical energy in view of the backwardness of India as a whole in this respect. In 1951 the total generating capacity of India was only 2.3 million K.W. made up of 1.7 million K.W. from the public utility companies and 0.6 million K.W. from the in-plant power generators of the factories. Hence the Planning Commission made a generous provision of Rs. 260 crores in the First Plan and Rs. 427 crores in the Second Plan for power. The needs of the entire region of Chotanagpur, West Bengal and Orissa and dependence of the heavy mining, metallurgical, chemical and engineering industries as well of the demand for traction have been fully visualised by the Central Water and Power Commission and the sanctions of the schemes and of funds for electrical development in Bihar and West Bengal have been satisfactory within the limited overall resources of the country. Moreover, the Electricity Department of the Government of Bihar has rendered a very good account of itself by the speed and efficiency with which all the schemes have been planned, co-ordinated and executed. Special mention may be made of the vision and imagination in drawing up the plans in such a manner that while no area has been neglected in the first and the successive phases, all the stations and supply lines get co-ordinated into a comprehensive integrated system as further development takes place.
- 14. Broad features of the development of power supply in Bihar.—The details of the performance during the first plan period, the schemes executed and under execution during the current second plan period and the schemes which are under further consideration for being taken up as funds become available bring out the broad features noted below:—
 - (1) The entire scheme was conceived with such foresight that haphazard individual units which could not be fitted into an integrated system have been avoided.
 - (2) The physical integration of the entire system within the State and links with the systems in the neighbouring states have been kept in view and supplies from them are being availed of or expected to be availed of.

- (3) Efforts have been made to cover the entire area of the State systematically.
- (4) Efforts are being made to utilise both the coal and water power resources.
- (5) Efforts have been made to meet all categories of demand and rural electrification has also been going on. Small and cottage industries also are being served. But it is doubtful if the supply can be developed to such an extent that the entire demand of all the heavy, medium and small industries can be met in the near future without further bold efforts.
- (6) Ideological bias has been avoided and only such private power enterprises have been taken over and merged in the State system of power generation as were not functioning efficiently, while such private enterprises as were doing well but suffered for want of funds have been even helped financially like those of Muzaffarpur and Bhagalpur.
- (7) We note, however, that the supply price is still high and a demand for reducing it for domestic consumption may not be very appropriate in view of the urgency of favourable and even subsidised rates for small industries. One hope of lowering the price lies in the expectation of the reduction in the transmission and distribution charges as the demand of the large industries bring in favourable load, regularity, diversity and continuity factors.
- 15. The achievements of the First Five-Year Plan from April, 1951 to Marc, 195—A sum of Rs. 1,074.21 lakh, made up of Rs. 946.20 lakh from the plan allocation and Rs. 128.01 lakh from the Technical Co-operation Aid Mission for tube-wells was invested during the period and the results noted below were achieved:—
 - (1) The lift irrigation scheme of the Patna district was co-ordinated with the electricity system. Further supply of power was taken from the Patna Electric Supply Company and the supply service was extended to the Mokameh bridge construction works in the east and to Brahmpur in Shahabad in the west via Maner, Bihta, Koilwar and other distributing stations. At Brahmpur, this system was linked with the other one radiating from Buxar.
 - (2) Similarly the Dehri-Sasaram lift irrigation system was taken over and strengthened with supplies from the Rohtas Industries and a chain of supply stations was set up up to Aurangabad.
 - (3) The Gaya licensee company had been taken over earlier. It was reorganised and strengthened and connected to the 132 K.V. grid of the Damodar Valley Corporation and extended to the rural areas.
 - (4) The Hazaribagh power house was taken over and linked with the entire supply of the Tilaiya Dam of the Damodar Valley Corporation. The Hazaribagh-Kodarma area was electrified and special care was taken to electrify the mica mines and factories.
 - (5) The Giridih power house had been taken over by the Electricity Department and became the base with supplies from other sources for electrifying the Giridih, Madhupur, Jasidih and Deoghar area.
 - (6) The power house and system of Mohuda was taken over by the Electricity Department and with further supplies from the Damodar Valley Corporation, the coalfield areas were electrified and lines extended to Ranchi on one side and to Daltonganj and Barun on the other. Barun became an important link between a number of supply lines.

- (7) The Shahabad system based originally on Buxar was expanded and linked with the Patna system at Brahmpur and with the Dehri-Sasaram-Auranga-bad system via Barun.
- (8) The North Bihar Electrification scheme was practically a new one except for the Chapra power house which was taken over. In this region, too, the system of tube-wells and electricity supply were integrated. A number of diesel oil power stations were put up at Bettiah, Chakia, Sakri, Samastipur, Mirganj and Hajipur in addition to the taking over of the Chapra power house.
- (9) While these schemes were in progress, the entire plan of power supply schemes of the First Five-Year Plan in Bihar was stepped up in all these regions. Hence additional diesel power stations in North Bihar were constructed at Bairagania, Saharsa, Katihar, Kishanganj, Forbesganj and Begusarai. It was so planned as to be easily fitted in the comprehensive scheme of electrification when large steam power would be put up at Barauni and the entire North and South Bihar grids linked at Mokameh. In Chotanagpur, extensions from the Damodar Valley Corporation for Ranchi, Chaibassa, Khelari, Gomia and various mining areas were taken up. A scheme for the transmission of power from the sub-station at Jamshedpur to Gua, Noamundi, Kharsawan, Sini and Chakradharpur and Jhinkpani was taken up.

By the end of the First Plan Period the position was that there were 13 isolated diesel power stations in North Bihar with 8,303 K.W. capacity to which 3,666 K.W. has been added or is being added. In South Bihar, there were 7 isolated diesel power stations at Pakur, Sahebganj, Daltonganj, Chatra, Buxar, Monghyr and Netarhat with a capacity of 3,241 K.W. to which 460 K.W. is being added. In addition to this the receiving stations drew 47,000 K.W. from the Damodar Valley Corporation and further power from the Rohtas Industries. The Damodar Valley Corporation would raise the supply to 1,10,000 K.W. after the new units at Durgapur and Bokaro are commissioned. The State electricity administration has been tapping every source of supply. Thus apart from the supply taken from the Damodar Valley Corporation, power is also taken from the Railways Power House at Beniadih. Moreover, as we shall see, further supply is expected from Hirakud and Rihand.

- 16. The Second Plan Period.—Between 1956 and 1961 it is expected to invest Rs. 1,902 lakh in the development of power schemes through the State Government apart from the development schemes of the Damodar Valley Corporation and some of the enterprises for in-plant power supply. The new investments would seek to achieve the results noted below:—
 - (1) Addition of 4 diesel power stations with a total of 3 M.W. capacity.
 - (2) The large 30 M.W. steam power station at Barauni may be started in this period.
 - (3) High Tension lines 5,322 miles and Low Tension lines 3,747 miles would be added to the mileage of 2,928 and 853 respectively already completed by 1956.
 - (4) The distribution sub-stations would increase from 1,532 to 5,000.
 - (5) The receiving sub-stations would increase from 8 with 14 M.W. capacity to 14 with 100 M.W. capacity.

- (6) Efforts are being made to meet the expanding power demand which has been estimated to rise from 20,000 M.W. in 1956 to 1,40,000 M.W. by 1961. Another estimate is that even this supply and the lowering of the supply price which is expected would not meet the demand of all the heavy industries.
- (7) Further integration of the entire system and strengthening of the supply to meet the demand would be achieved by means of further large supplies from the Damodar Valley Corporation and construction of a receiving station for 5,000 K.W. from Hirakud at Barabil in Singhbhum. A supply from the hydel power house of the West Bengal Government has also been obtained. A supply of 40 M.W. is expected from the Rihand power house.
- (8) With the same objective of a complete integration and comprehensive coverage, 132 K.V. lines would be extended from Maithon to Bhagalpur, Jamalpur and Monghyr. Moreover, links would be established between lines in Santhal Parganas and Bhagalpur.
- (9) The inter-linking of the North and South Bihar grids at Mokameh has already been referred to.
- (10) With the same objective of integrating the system of supply more efficiently, the power houses of the licensees at Arrah, Lakhisarai, Khagaria and Monghyr have been taken over by the Government.
- (11) There was a scheme of the Damodar Valley Corporation to add another 50 M.W. unit at Bokaro and this has been raised to 75 M.W.
- (12) In view of the large demand for transportation on account of the industrial activities at Jamshedpur, Durgapur, Rourkela and Hatia, further electrification programme of the railways has become necessary. Since no additional power is available from the Damodar Valley Corporation, the 300 M.W. scheme of the Railways is to be raised to 450 M.W.
- (13) Another power station for 125 M.W. is contemplated at the Dugda coal washeries station.
- (14) An additional power house of 100 M.W. is contemplated for the Hatia enterprises.
- (15) Further electrification of 1,747 tube-wells is to be completed raising the total to 3,000.
- (16) As the power supply position in Bihar is intimately connected with the development of the Damodar Valley Corporation enterprises, a brief account is called for. During the First Plan Period, the Bokaro Thermal Power Plant with a capacity of 1,50,000 K.W. was completed. This was planned to have an addition of 50,000 K.W. at first. But in view of the growing demand for power the scheme has been raised to 75,000 K.W. The Tilaiya, Konar, Maithon and Panchet Hill dams, when completed, would generate 1,50,000 K.W. of hydel power. The Tilaiya installation started working in 1953 and the Maithon station with the first unit in 1957. Other schemes are nearing completion. The Damodar Valley Corporation is also pushing one other thermal power station at Durgapur with a capacity of 1,50,000 K.W.

17. Looking ahead beyond 1961.—Even if the target of 1,40,000 or 1,60,000 K.W. supply by the year 1961 would be but a fraction of the power required for an effective servicing of our economy, it is expected that by 1961 the consumption of electricity per head of the population would rise to 17 units from 4.2 units in 1956. But even this is very little when compared to the level of other countries. Thus the efforts will have to be intensified with further industrialisation and prosperity as more resources become available.

It is more likely that the Barauni scheme of a 30,000 K.W. steam station would only be taken up after 1961. The efforts of the Damodar Valley Corporation to attain the target of 500 M.W. would continue. New thermal stations are likely to be considered in the coal mining areas.

Four river valley schemes in Chotanagpur are under investigation. These are—

- (1) The South Koel scheme which may generate 200 M.W. in the first stage and another 100 M.W. in the second stage.
- (2) The Sankh valley scheme may generate 150 M.W.
- (3) The Subarnarekha hydel project may yield 40 M.W. plus 20 M.W.
- (4) The Sone barrage, when water becomes available from the Rihand scheme, may generate 70 M.W.

It is rather disappointing that the Kosi barrage is expected to generate only 20 M.W. The Gandak Project is expected to yield 50 M.W. plus 80 M.W. at two sites and that these will have to be linked with the proposed thermal station at Barauni for steadying the hydel supply.

18. The problem of the high supply price of electricity in Bihar.—From the very first meeting of this Committee the grievances of the small industries against the high cost of electrical energy to them have been voiced. This handicap is a genuine one and affects not only the small but also the heavy metallurgical industries. Thus it has been found that even the lower charges of the Damodar Valley Corporation are too high for the aluminium industry in Bihar. Even after allowing for the rebate for timely payment, the charge comes to 25 Naye Paise per unit in North Bihar for the power supplied from the isolated diesel oil power stations. It is 18 Naye Paise per unit in the South Bihar areas where the power purchased from the Damodar Valley Corporation is available. But even in South Bihar power generated from diesel oil power stations can be sold only at 25 Naye Paise per unit. In the Dehri-Sasaram-Aurangabad area the cost is expected to be about 15 or 16 Naye Paise for the energy from the Rohtas Industries. The cost of the power obtained from the Damodar Valley Corporation for the mining and industrial areas of Chotanagpur is about 13 to 14 Naye Paise per unit.

It is evident that not only the small industries, but even the large industries, specially the electro-metallurgical and electro-chemical industries are seriously handicapped for want of cheap power supply. For example, the Indian Aluminium Company has to send all the alumina after the mechanical treatment of Bihar bauxite to Alwaye in Kerala for electrolytic reduction because it requires 22,000 to 26,000 K.W.H. of electricity to manufacture one ton of aluminium ingot. Similarly, one ton of steel consumes 5,000 units, one yard of cloth in weaving requires $\frac{1}{2}$ unit, 1 pound of rayon pulp requires 4 units of energy, and so on. The high supply price of industrial energy in Bihar becomes all the more glaring when we compare the figures given above with the all-India averages. An international comparison shows that the average

rate per unit for industrial energy in India comes to about 0.9 to 0.6 annas as against 0.803 annas in U.K., 0.762 annas in U.S.A. and 0.560 annas in Canada whereas the lowest rate in Bihar exceeds 2 annas. The incidence of the charge for electricity on finished products is brought out by the remark of the Tariff Commission Report on aluminium industry in 1958 that in an integrated plant of 10,000 tons capacity, annual power requirements are of 26,000 K.W. and a variation in the cost of electrical power by one naya paisa per K.W. gives rise to a variation in the price of aluminium metal by about Rs. 260 per ton.

19. Factors determining the supply price of electricity in Bihar.—Following the familiar line of price analysis, we may seek for the causes of this high price of electricity in Bihar by looking into the conditions determining the demand factors on the one hand and the supply factors or the cost conditions on the other.

Looking at the demand side first, we find that it is a composite demand made up of the demand schedules for different purposes by different classes of consumers with varying capacities to pay. Thus whereas the physical properties of the electrical energy generated and supplied are the same, the properties or economic features of the components of the structure of demand are different. We may, however, note by way of caution that while the physical properties of the supply are the same, the economic factors of the generation and sale are not uniform and would justify and even necessitate differentials in the rates charged, as we shall see later on. With these remarks, we may proceed to examine the nature of the composite demand.

- 20. The demand factors in pricing.—The structure of the composite demand, each component having its own economic features with their bearing on the pricing system, is made up of the following categories of demand:—
 - (1) Domestic consumption for light, fan, refrigeration, washing, etc.
 - (2) Public or street lighting.
 - (3) Commercial demand for shops, cinema houses, advertisements, etc.
 - (4) Industrial demand which itself as a composite one is made up of different load conditions as from—
 - (a) Small industries with load below 20 B.H.P.
 - (b) Medium industries with load between 20 and 100 B.H.P.
 - (c) Large industries with load of 100 to 500 B.H.P.
 - (d) Heavy industries like paper, cement, textiles, etc.
 - (e) Electro-metallurgical and electro-chemical industries with an enormously high load of continuous demand.
 - (5) Water-supply.
 - (6) Irrigation and dewatering.
 - (7) Traction.
- 21. Differences in the economic features of demand from different sources in relation to price.—Prices may vary in relation to demand for two quite distinct sets of reasons and this distinction is very important. Firstly, there may be differentials in the rates charged according to the capacity of the buyers to pay or according to the value of

the service which determines the upper limit of a charge. This is a recognised method of charging in the railway rate making and in most pricing systems, but is not a recognised or legal method in the supply of electrical energy. A clearly distinct set of conditions sorts itself out when differences in the nature of demand entail and involve differences in the cost of supply (including cost of generation or production). These conditions would be and are legally recognised, as necessitating differentials in charging. We may, therefore, look into them more closely. These, it may be noted, are different from and superimposed on the conditions determining the cost of generating per unit of power.

22. Conditions of demand determining supply price.—The price for domestic supply has got to be high because it requires very large transmission and connection lines to each house and a higher cost of distribution and administration. Commercial and street lighting demands also are of the same kind. All these demands also add to the peak of the load and necessitate the running of a higher capacity at night which is not fully utilised in day time.

Consumption in small quantities and discontinuously, therefore, add to the cost by creating a gap between the installed capacity and its utilisation. For these reasons the charge for domestic consumption of electric current has got to be higher. The cost conditions of the supply to heavy and large industries are favourable for a low rate on account of the conditions of demand being continuous, regular and in bulk.

- 23. Special case of the demand of small and cottage industries.—The demand of the small and cottage industries is not in bulk as of the large industries. It may also be less continuous and regular. But the condition that this demand of the small enterprises is generally for the working hours in day time, and would be complementary to large peak load of the domestic and municipal demand at night, may be urged as a condition justifying a concessional rate for the small industries. There is, however, a strong case for special concessions for these industries for all those reasons for which these industries have been receiving systematic support of the State to protect them and improve the chances of their survival. There is a strong case for adopting subsidised or promotional rates for them as has been examined in the preceding chapter.
- 24. The cost of production and of supply in general.—Any enterprise must recover its cost of production including the remuneration for management and a surplus for growth if it is to survive in competition with other enterprises for the supply of productive resources. Hence the total of the cost of production plus that of transmission, distribution and administration must be covered by the total of the sale-proceeds, whatever the structure of the differential charges. The following factors determining the cost of production and of supply have got to be noted in considering the system of pricing.

The power generation industry is a typical one, like the metallurgical and other heavy industries, in which the economies of the large technical scale or unit are very marked. The larger the size of the plant, the smaller would be the per unit cost of generation. Thus, other things being equal, there is a strong case for large centralised power stations if there is a choice. It is for this reason of small generating units that the cost is high in North Bihar. On the other hand, a centralised plant would require heavy capital and recurring operational costs on transmission lines and for distribution if the market or demand is decentralised or diffused. Thus, the planning of a supply system has got to strike a balance between these two opposed forces if there is scope for choice about the location.

25. The capital at charge and the operational costs on fuel, labour and administration.—The next important factors are the return on the capital and the costs of raw materials and labour and the administrative staff. In these respects there is no absolute criterion about the relative economies of thermal (and within this class of steam and diesel engines) and hydel power plants. They are relative to a number of governing conditions which we may indicate here.

- (a) The capital cost of hydro-electric stations tends to be higher than of thermal stations on account of the higher costs of investigations, designing, large civil or constructional works, dams, power station, etc. The transmission lines and distribution stations also cost more because of the distance of the centres of consumption. Hence the capital outlay is about Rs. 1,000 to Rs. 1,500 per K.W. as against about Rs. 900 for thermal stations.
- (b) Secondly, in hydel works there is a heavy initial expenditure before power can be generated whereas in thermal stations, the expenditure may be phased and returns start coming in earlier.
- (c) Thirdly, a thermal station takes 3 to 4 years to complete whereas a hydel station takes 4 to 6 years to complete and cannot be commissioned in instalments.
- (d) On the other hand, the operational expenses of the thermal stations are higher than those of the hydel stations specially when coal has got to be transported over long distances. The cost of diesel oil also is high. Moreover, the thermal stations require a larger number of men to work than hydel stations, but the latter have got to employ more men on transmission lines because the location of the latter is dictated by geography.
- 26. The cost factors in Bihar.—The task of calculation of the comparative supply prices of electrical energy from different types of power stations and for different consuming localities is a highly technical job and we are not attempting it. But a review of the broad factors will not be out of place and we expect that the supply price of electrical energy in Bihar should not be as high as it is at present after the potentialities of our resources have been developed more substantially.

While the cost of production from the small isolated diesel stations, specially in North Bihar, is bound to be high, the cost of generating electricity at large thermal stations using low grade coal in Chotanagpur should be, and is, much lower. It would have been lower still but for the high foreign exchange component of the thermal stations estimated at Rs. 500 to Rs. 600 per K.W. The Bihar coal fields are the richest in India and newer seams are still being discovered, one of the recent ones being in Palamau. Moreover, the low grade non-metallurgical coal, of which we have got large deposits is suitable for being used for generating power which can then be used for driving machinery as well as for electro-metallurgical and electro-chemical processes. Another favourable factor is that the setting up of coal washeries are producing large quantities of middlings as a by-product which are proposed to be used for thermal power houses. This fuel should be available at low prices since it would become a burden on the washeries necessitating heavy costs in getting them away if they are not utilised as fuel for thermal plants. Again, large power stations are possible in South Bihar on account of the proximity of the coal mines cutting down the cost of transportation. Finally, the capital cost of thermal stations are lower. We find that the capital cost of per K.W. of the installed capacity even in the first stage at Bokaro comes only to Rs. 865 or at Durgapur (Damodar Valley Corporation) at Hirakud, Rs. 924 at Bhakra Nangal and to Rs. 790 as against Rs. 1,735 Rs. 1,305 of the Chambal project for their hydel stations. With regard to the transmission and distribution charges, the former ranges generally from Rs. 200 to Rs. 500 according to distance and density of load and the latter between Rs. 300 to Rs. 500

per K.W. It is obvious that the transmission costs in Chotanagpur would not be high as the consuming areas and the power stations are situated side by side. The rapid industrialisation of these regions with their heavy ancillary and derived industries are bound to create more favourable load factors in this region than in any other part of India. In the states south of the Vidhyas, the hydel stations had to carry electricity over long distances to the consuming centres whereas the industrial townships of Bihar are growing up all over the coal belts.

These thermal sources in South Bihar would be reinforced from the hydel sources when the Sankh, Subarnarekha, South Koel and Sone schemes materialise in addition to Damodar Valley Corporation hydel works already completed or under construction. But perhaps, the scope for further development of hydel power would be exhausted after these schemes have been completed. So far as information is available our hydel potentialities are limited though for the whole of India these have been estimated at 40 million K. W. So far as these four South Bihar hydel schemes are concerned, we have seen that the estimate of their generating capacity has been rated at 580 M.W. Their locational advantages are the close proximity to the large consuming centres and the case with which their supplies can be steadied with power generated from the thermal stations.

The cost of electrical energy in North Bihar is naturally high on account both of the demand as well as the supply factors. The existence of industrial demand with favourable load, diversity, regularity and continuity factors are absent. Secondly, the rural electrification scheme adds considerably to the cost of transmission and distribution. On the supply side, the small isolated power stations using diesel oil mean high per unit cost of generating power. However, the Kosi and the Gandak river valley projects are estimated to add 150 M.W. of hydel power to the supply. It is expected that in the long run the setting up of the big thermal station using steam and with a moderately high capacity of 30,000 K.W. at Barauni coupled with the linking of the North and South Bihar grids at Mokameh for exchange of 10,000 K.W. would reduce the average supply price. This prospect of a lower supply price may be further reinforced by the growth of industries in and around Barauni and the emergence of favourable demand factors.

- 27. Direct employment in the industry of generation and distribution of power.—We have not got accurate figures of employment in the power industry in Bihar because from the employment point of view we have to take into account the personnel both permanent and temporary, employed by,
 - (1) the Bihar State Electricity Board,
 - (2) the private generating establishments functioning as public utilities,
 - (3) the personnel employed in this section of the Damodar Valley Corporation enterprises within Bihar, and
 - (4) the in-plant power generators of factories.

The Census figures of 1951 in Subdivision 5.5 covering electric power and gas supply puts the total figure of employment at 967 for the entire State including 162 self-employed persons. The figures of employment under the State Electricity Department show an appreciable rise to—

Technicians .. 322

Skilled and unskilled . . 10,000

This, however, is only a fraction of the total employment in the power industry when we take into account all the other enterprises. It may also be noted that all these developments have taken place or been speeded up since 1951.

28. Employment in the ancillary and derived industries of power generation.—The development of power generation gives rise indirectly to two other large fields of employment which deserve notice. Firstly, a large volume of employment is created in the constructional stage for civil works and then for their maintenance. Secondly, the power generation industry is as versatile as the automobile industry in creating a large number of subsidiary or ancillary industries.

With regard to construction and maintenance the Census Subdivisions of Division 5 do not give separate figures for construction and maintenance of the power houses. Even in the river valley schemes, while there is a formula for splitting up capital costs between different heads and imputing an amount to the power generation works for accounting purposes, the figures of employment in the constructional stage can be calculated separately only for the construction of the power plant.

The power generation and supply industry gives rise to a very large number of other large, medium and small industries which we recommend to the notice of the Government with a view to encourage at least some of them which can be taken up in medium and small scale enterprises apart from the manufacture of heavy electrical machinery which is being developed by the Government of India at Bhopal. There is a big list out of which choice may be made, and Bihar enjoys facilities for most of them and has already taken up a few. The following is a list of the manufacturing industries which are created by power development and which are suitable for State, mixed and private enterprise.

- (a) Generators.
- (b) Transformers.
- (c) Switchgears.
- (d) Dynamos.
- (e) Electric power cables and wires.
- (f) Bare copper conductors.
- (g) Insulated aluminium conductors.
- (h) Winding wires (cotton, silk or enamel covered).
- (i) A.C.S.R. conductors.
- (i) Rubber insulated and plastic insulated cables and flexibles.
- (k) V.I.R. and P.V.C. cables.
- (l) Paper insulated power cables.
- (m) Dry core telephone cables and wires.
- (n) A.C.S.R. cables.
- (o) Power cables.
- (p) Electric fans.
- (q) Lamps.
- (r) Fluorescent tubes.
- (s) House service meters.
- (t) Electric motors.
- (u) Conduit pipes.
- (v) Dry batteries and Storage batteries (giving rise to a further number of small industries).
- (w) Radio receivers.
- (x) Telegraph and telephone cables.
- 29. Transportation services constitute the circulatory system of the economy and have got a high employment value.—Transportation emerged as an economic service and a source of employment with the coming into existence of exchange, of money and of

market as a result of occupational and regional specialisation and development of industries requiring a variety of raw materials. The magnitude of transportation is related to the growth of these features and of all the accessories of an economy. All functional and geographical specialisation necessitate the integration of the economy through transportation and other accessory services for circulation of goods. Unless these facilities are available, the entire process of development of an economy is inhibited. While economic growth creates demand for transportation and other marketing services, liberal availability of these provide ease and facility for growth.

- 30. The necessity of forecasting the transportation requirements of a growing economy.— We have noted that all over the world the awareness of the evils of poverty and the realisation of the capacity for forcing economic growth has brought in the modern age of planned economic development. So long as economic growth was regarded as something which was automatic and took its own course and time through the market forces, structural adjustments within the economy and the time lag they required were considered to be unavoidable. Transport facilities were created in response to accumulating demand with a time lag to enable demand to bring into existence the supply of the service. But the requirements of guided and planned economic growth of modern times would not tolerate this time lag for an automatic adjustment of transport facilities to the demand because of the waste of the resources and the retardation of growth which it would involve. Hence the planning of transport facilities is an integral part of planning as a whole. Let us, therefore, look into the methods of anticipating and calculating the transport requirements of any given rate of economic growth which may be decided upon on the basis of the resources available. It is to be noted that the transport services being the overheads for the entire economy, the requirements have got to be calculated for the public and the private sectors taken together.
- 31. The methods of estimating transporation requirements.—A rough and ready index of transport requirements is sometimes sought to be worked out for a new and developing country on the basis of the number of railway and road miles and the number of wagons and trucks in the advanced countries against every hundred square miles of area or one lakh of population or each lakh of Dollar or rupee of national income. Such comparative estimates may be interesting but do not provide us with reliable data for policy formulation. This is all the more so because in a backward economy investments on transportation have got to be phased on account of the limited resources. For the purpose of policy formulation and execution, estimate of the actual requirements has got to be worked out on the basis of concrete and specific data which we are indicating below. Our planning is not as comprehensive as that in the Soviet Union where the estimates and forecasts from the primary units like the factories, state and collective farms and from the town and village soviets are available and are aggregated at all the higher levels of the raion, the oblast, the constituent republic and the entire Union along two parallel lines of the separate authorities of the ministries concerned and of the organs of the Planning Commission at each level. In India the data for the enterprises in the public sector are available. The large enterprises in the private sector also have got their reliable formulae of their transport requirements and the estimates may also be worked out on the basis of the materials and information submitted to the licensing authority under the Industries (Development and Regulation) Act of 1951. Moreover, data for large units in 29 industries covered by the census of manufacturing industries of the Government of India may also be used for estimating the existing and projected transport requirements. Accurate figures of the out-put of the mines also are available. But for the major part of the economy in the aggregate consisting the products of the fields, small workshops and industries, hand trades, etc., only deductive and inferential methods are available. We are giving below a brief account of how more accurate calculations may be arrived at even though they may not be as accurate as in a totalitarian economy.

- 32. FACTORS IN THE CALCULATION OF TRANSPORTATION REQUIREMENTS.
- 32.1. Agricultural produce, fish, fruits and vegetables.—We start with the figures of the out-turn of foodgrains and raw materials and of the targets from year to year. Agricultural out-turn is subject to great fluctuations even in the aggregate where local variations may be expected to be averaged out.

The next important consideration is the percentage of this out turn which enters the circulation of the market. A large percentage of the foodgrains is consumed locally and at best circulates within a short range. But the quantity circulating in the wider market calling for means of transport is appreciable and would tend to increase with the progress of industrialisation and urbanisation. We can arrive at a fairly accurate calculation if we compare the originating traffic in foodgrains on the railways with the figure of agricultural out-turn of the preceding season and also allow for and calculate separately the movement of imported foodgrains. An impotant gap would be left about the figure of foodgrains moving by bullock carts to the local consuming centres and not to the rail heads and the quantity similarly moved by trucks and river crafts. For this category estimates may be arrived at by some sample surveys. A rough generalisation which is used is to rate the foodgrains in circulation at 45 per cent of the out-turn.

It is easier to calculate the transportation demand of the agricultural raw materials like cotton, jute, sugarcane, oil-seeds, etc. Local consumption may be allowed for on the basis of past experience and statistical data. Sugarcane, however, moves within a limited area around the factories or is crushed for gur within an even narrower area.

The figures of Report on the Marketing of Fish can be accepted as showing the quantity moved, and for fruits and vegetables, the figures of rail-borne traffic have got to be accepted and added to the estimate of local transportation.

- 32.2. Forest produce.—Forest produce is becoming a more important source of transportation demand as a result of the growth of urbanisation creating demand for fuel, fodder and charcoal, the progress of paper and high grade pulp industries and the demand for timber. Local consumption and head-load transportation may be allowed for on the basis of observed conditions. Figures of the staple products are available from the Forest Department and holders of large concessions.
- 32.3. Minerals.—It is easier to calculate the traffic demand for minerals as local consumption would be insignificant.
- 32.4. Plants, equipments and materials required in constructional stage of the manufacturing industries.—The manufacturing industries, specially in the constructional stage, and then as a result of normal expansion, entail the movement of large quantities of building materials, plant and equipment. Reliable figures of cement requirments are available and other materials, apart from steel and wood are calculated at six times or so of the bulk of cement consumed. Much of the transportation of constructional materials calls for local traffic except for cement, steel, lime, timber, glass, etc.

The traffic requirements for moving large plants and machinery generally call for special arrangements and have got to be calculated beforehand.

32.5. Manufactured goods.—For the organised industries in the public sector we get the detailed figures of the plan targets. In the private sector, too, calculation for the organised industries is easy. The operation of different industries

and different factories calls for the movement of raw materials and of finished goods. For the large industries the calculations are quite accurate as regards the quantities of each raw material and different finished and semi-finished commodities. Thus as a formula, it is estimated that each ton of steel requires the movement of 6 tons of raw materials. Similar estimates are available about paper, cement, glass, textiles, jute, etc.

The movement of finished goods may fluctuate within certain limits but the volume is known fairly accurately.

- 32.6. Products of the small industries.—The main difficulties are about the movements on account of small industries. Here we shall have to depend on the figures of the rail traffic and then to deduce the demand for local movement and for other means of transport connecting rail-heads with centres of consumption or sources of raw materials. Estimates for such of the small industries as submit returns to the Chief Inspector of Factories can be made fairly accurately on the basis of rated capacity and trend of production. This will have to be allowed for to avoid double counting if the figures of the railway traffic are made the basis of calculation.
- 32.7. Commodities imported or exported.—An addition to the volume of commodities in circulation is made by the imports of commodities of all categories. This has got to be calculated separately. The volume of exports may be considered for each commodity when the figures of production and the percentages entering into circulation are calculated.
- 33. The volume of commodities in circulation and lead of haulage.—Transport requirements are not calculated only in terms of maunds or tons but also in terms of the distance over which each unit has got to be hauled and which determines the second dimension of the volume of traffic facilities demanded. We have noted that apart from the quantity consumed on the spot, a certain percentage of the commodities entail only local movement and the rest call for long distance transportation. The average lead of each commodity on the railways has been calculated and accurate averages are available. But for the rest of what is transported (1) for local circulation, (2) short distance markets, (3) to and from the rail-heads, no reliable figures of lead are available. From the point of view of our Committee these are important figures because we are looking for a large volume of employment in this sector of transportation services by bullock carts, trucks and river craft. We shall see how the traffic handled by bullock carts alone was estimated to be equal to the total of the tons handled by railways.
- 34. Estimate of the transportation facilities during the second plan period.—We have reasons to believe that the estimate of the transportation requirements by the Railway Board for the second plan period has been rather moderate. Against the demand for 120 million tons of originating traffic, the railways could only handle in the year when the plan was being worked out 115 million tons. Thus 5 million tons of traffic registration could not be met. The second plan investments in the railways were estimated to raise the traffic capacity by 40 per cent or 47 million tons demanding a capacity of 162 million tons by 1961. Meanwhile the plan investments in the public sector and the growth in the private sector were expected to create an additional demand for 60.8 million tons made up of—
 - (a) Coal 20 million tons.
 - (b) Steel and raw materials ... 18 million tons. (c) Cement 5 million tons.
 - (d) Increase in miscellaneous traffic at 17.8 million tons. 5 per cent per annum.

Total .. 60.8 million tons.

Thus the total demand for railway transportation by 1961 was estimated at 180.8 million tons. But meanwhile the target for eement was raised by another 3 million tons. Thus against the total demand for railway transportation of 183.8 million tons the capacity by 1961 was expected to reach only 162 (115+47) million tons which was later on revised to 168 million tons and then to 164 million tons. This leaves a gap of 19.8 or 20 million tons to be handled by roads, inland navigation and coastal shipping. It was estimated that coastal shipping would be able to deal with 4.3 million tons and inland water transportation 0.8 million tons.

This estimate of the demand on the railways, however, does not constitute the whole of the demand for transportation services. In 1943, the Consulting Engineer of the Government of India for roads had estimated in a note submitted to the Government that about 8 million bullock carts were carrying about 100 million tons of goods which was equivalent to the entire volume of traffic carried by the railways before the Partition. Now, there is no reason for believing that the bullock carts have been losing any ground absolutely. We come to this conclusion because most of the bullock cart traffic are in the nature of feeder service to railways and to the local markets, village hats, etc., and are bound to increase with the expansion of all long distance traffic. Secondly, further estimates have shown that the number of bullock carts has been increasing at the rate of 2 per cent per annum. At best what is possible is that with the progress of economic development, a larger percentage of additional heavy and long distance traffic would be going to the railways and trucks (and may be to river craft) than to the bullock carts. But this very development would be creating additional demand for bullock carts for terminal haulage and local transportation. It is estimated that by 1961 there would be 11.6 million bullock carts in commission in India. But all the bullock carts are not engaged in transportation service all the year round. Only a certain percentage serve mainly as carriers and the rest take up transportation in the slack agricultural season. Moreover, most of the bullock carts are meant mainly for farm work. Even taking into account all these factors, the aggregate tonnage of goods handled by bullock carts as regular hauliers or in part-time service is quite large.

Apart from the railways and the bullock carts, the other means of conveyance are the powered road vehicles, inland water vehicles and the coastal shipping. Information about the first two is not sufficient. Even the annual account of the River and Rail Borne Traffic is not adequate because the river borne traffic gives the figures only of the traffic carried by the large steamship companies whereas a much larger volume of traffic is carried by country crafts. Moreover, the volume of traffic carried by the increasing number of trucks can only be worked out by the formula of their number, carrying capacity, average number of days for which they are on the road per month and the average miles covered per day.

35. TRANSPORT DEMAND DURING THE SECOND PLAN PERIOD.

Taking all these factors into account, it appears that an estimate given by the General Manager, Hindustan Motors in 1958 of the volume of traffic demand by 1961 being 280 million tons appears to be a more dependable approximation. We may compare this estimate with a more detailed calculation given by a well known authority on road transportation (Shri B.V. Vagh) on the basis of the targets of production formulated by the Planning Commission for the second plan period. This account will also give us further details about the method of estimating future transport requirements.

We may refer here again to the fact that these estimates have not taken into account local traffic demand or the supply of subsidiary transport facilities.

35.1. Produce of land.—Production target of foodgrains by 1960-61 is 75 million tons. To this has got to be added the sugarcane products, oil-seeds, vegetable oil,

cotton, jute, tea, coffee, rubber, fish and timber and other forest produce. The total comes to about 98 million tons. It would be clear that this figure does not include sugarcane since the quantity carried to the mills for crushing alone would be over 50 million tons. Evidently, this has been excluded as a local traffic and only sugar, gur and khandsari sugar have been taken into account. It may also be noted that this class of produce from land is a very miscellaneous category. It has already been noted that the accepted formula about foodgrains is to rate 45 per cent of production as coming into circulation. The other produce of land, water and forest have got to be estimated individually.

- 35.2. Minerals.—All minerals naturally enter into circulation and their production by 1960-61 is expected to be 95 million tons.
- 35.3. Manufactured goods.—The available figures of manufactures have all been put under one category though separate figures from the plan targets are available. The estimate for all manufactured goods from iron and steel to cement, glass, paper, fertilisers, jute and cotton goods, chemicals, etc., comes to over 37 million tons in 1960-61.

There are other manufactured goods not estimated in tons but in numbers and their rough estimate in terms of transportation space requirement and a conventional equivalence in tons would be necessary. We do not find any formula for this conversion but the railway statistics give all these figures in tons.

- 35.4. Commodities for export and import.—We think that the volume of exports may be estimated from the figure of percentage in circulation. But the figures of imports will have to be calculated separately as the imports are not already counted in the statistics of production. The estimate of imports has been given as 1 million ton per year.
- 36. The supply of transport facilities, their substitutional and complementary relations.—We shall be looking into the various means of transportation in greater details later on. Here only their categories, how far they are complementary or substitutional and how they total up as a composite supply may be noted.

We are very much advanced already beyond the stage when the grower or the craftsman marketed and hauled his own commodities. In a backward economy this is a common feature and head-load and pack animals are still widely used in the difficult mountainous regions of the world like Tibet, the Himalayan and the Andean regions and in other similar terrain.

In our country we have got to take cognizance of the humble bullock cart both from the transportation and employment point of view. We have already noted that the tonnage hauled by bullock carts in 1944-45 was equal to that which the railways attained in the year before the Partition. In terms of ton-mile carrying capacity one country bullock cart is rated at one-sixtieth of a truck.

River transportation is important not only for bank to bank traffic but also for long distance transportation of cheap and bulky goods.

Canals are very important for the transportation of cheap and bulky goods in some countries. But they are not very important in our State.

Coastal traffic is important in countries with long sea coasts in proportion to the area of the country. We have no sea coast. But in the peninsular India, coastal traffic plays an important part in relieving traffic congestion on the railways.

In 1954-55, coastal shipping carried 4.3 million tons of traffic including 1.5 million tons by sailing ships.

The railways were responsible for revolutionising the entire economic life all over the world. In recent years they have been losing ground to road traffic so far as sharing in the annual growth of traffic is concerned. Unless India is able to tap large mineral oil resources, the railways, whether using steam or electricity for traction would continue to hold their ground in the transport system if operational efficiency is improved. From the national point of view a healthy survival of railway transportation is necessary in view of the ample coal resources of the country and the dearth of mineral oil resources.

Road transportation by trucks began as feeder and terminal services to the railways and canals. On account of certain clear advantages, it has tended to become a substitute for railway transportation.

37. The demand for transport services in Bihar.—Whenever statistics concerning the Bihar State are not available separately but all-India figures are available, the usual formula is to take one-ninth of the all-India figure as roughly applicable to Bihar on the basis of our population. Of course, this formula would not be applicable if in the subject under consideration area is more important than population because whereas the population of Bihar (present area) was 387 lakh in 1951 against the all-India figure of 3,569 lakh, the area of the State is only 67,000 square miles or one-nineteenth of 12,67,000 square miles of India.

There are reasons for inferring that the traffic density in Bihar would be greater than one-ninth of the volume of traffic of the Indian Union, and, therefore, employment in transportation would account for more than one-ninth of the employment in transportation in India. The reasons are the following:—

- (a) A comparative study of the railway traffic shows that goods traffic is more dense on the railway systems in Bihar and Bengal than in other states.
- (b) North Bihar is deficit in food supply and also imports large quantities of manufactured goods and coal.
- (c) The plateau region has the richest concentration of mineral resources. These have got to be moved all over the State and to other states as raw materials for steel, cement, aluminium, paper and other industries.
- (d) There is the originating traffic in large quantities of manufactured goods like pig-iron, steel, cement, fertiliser and chemicals.
- (e) There is also the inward movement of some heavy and light raw meterials.
- (f) The sugar industry accounts for a large volume of local traffic and an appreciable volume of traffic in refined sugar and molasses while gur is moved both internally and from outside the State.
- (g) North Bihar is very poor in all road and building materials and large quantities of coal for burning bricks, cement, lime, stone chips and tar have got to be moved for roads, residential and public buildings.
- 38. Transport co-ordination.—Before we examine the employment value and economies of the different kinds of transport services, we may note the very important feature of our transport system as a whole that the supply in aggregate is short of

demand and that the demand is continuously forging ahead of the supply as a result of economic growth. For this overall reason, any question of a competition between the different systems of transportation by rail, road, inland waterways and coastal shipping becomes far less important than that of co-ordinating them and working them as constituting a composite supply. This point of view was clearly stated by the World Bank Mission in 1956 which inspected the Indian Railways in response to a request for a loan. The Mission observed

"We urge that the Government review its whole transport policy and programme with a view to maximising transport by all available means—by rail, roads, coastal shipping and inland waterways".

The Mission further recommended

"more energetic measures to remove state and inter-state restrictions on road transportation and to reduce tax rates bearing on road transport".

The following assessment of their complementary and substitutional relations would show how predominantly complementary to one another they are in our economy:—

- (a) Railway transportation is the backbone of the transport system and it is not possible for the road and inland water transport system to take its place completely, specially in India. In countries where road traffic in goods has been increasing over railway traffic as a percentage of the total traffic the conditions are exceptional. For example, in Australia much of the traffic routes operated by trucks cannot support the heavy capital cost of a railway on account of the low density of traffic. In the U.S.A. and other countries, the relative growth of the lighter industries and the type of traffic created by them along with the exceptionally favourable cost factors of road transportation enable trucks to carry even long distance coast to coast traffic over 2,500 miles by road. It should, however, be noted that all heavy industries have to depend on railway transportation. Further, railways alone are in a position to adjust the rates and charges according to the principle of what the traffic and development require will not bear. If in India and elsewhere, the railways are losing high rated quality traffic, it is on account of administrative defects and certain clear advantages and shipper preference for motor transportation for certain kinds of traffic. Finally, we have to note that railway transportation itself creates and supports all the other kinds of traffic by road and water as ancillary services.
- (b) Powered vehicles on roads open up traffic in regions where the density of traffic cannot support a railway and its capital cost. Trucks also serve as feeders to railway, river and coastal transportation. But for certain reasons trucks do compete with the railways in quality traffic because of the ability of the former to establish personal contact with the customers, the door to door collection and delivery service, the speed of trucks which move generally thrice as fast as wagons, personal attention given to the parcels and the avoidance of loss, non-traceability and pilferage of goods.
- (c) Minus speed, the bullock cart has got all the advantages of transportation by trucks. It is ubiquitous and not fastidious about the surface of the road. Under certain conditions of poor roads, small and short distance traffic and haulage to rail-heads, river ports, local markets, etc., the cart can hold its own against all other means of transportation.

- (d) Inland water transportation may be the most convenient means in certain riverine areas and during rains. It is the cheapest means where time factor does not count and the goods are bulky and of low value. As to the cost of transportation, it may be noted that the frictional resistance to traction on water is only one-eleventh of that on solid surface. Water transportation can be organised from small one-man enterprise right up to large capitalist ventures or as links in and parts of a composite transport organisation.
- 39. Railway transportation.—We have already given the calculations of the Railway Board about the traffic demand on the railways which would be created during the second plan period and the deficit in the capacity to meet it even after the heavy investments in 1956—61. This difficulty is not only due to the growth of our economy but is also and mainly accounted for by the fact that not only the normal growth but even routine replacements and renewals could not be achieved during and after the Second World War. The extent to which the Indian Railways had been starved both in respect of renewals and replacements as well as in respect of additions to the capacity in proportion to the growing requirements of goods and passenger traffic is brought out by the following statement:—

	31st March 1939.	31st March 1949.	31st March 1952.
Number of locomotives	7,919	7,761	8,411
Number of passenger carriages	16,620	12,665	14,486
Number of wagons	2,05,017	1,98,863	2,06,496

Thus the main effort of the railway administration has been to make up for what should have been the course of normal growth from year to year. The lee-way is being made up by the allocations of the First and the Second Five-Year Plans amounting to Rs. 268 crores in the first and Rs. 900 crores in the second plans. The provision in the second plan was reduced to Rs. 896 crores, but the Railways are spending Rs. 225 crores out of their Depreciation Fund, bringing the estimate for the second plan period to Rs. 1,121 crores. The Railways have been seeking to meet the demand for additional traffic mainly by improving the working efficiency and adding to a limited extent to the rolling stock because most of the funds are being used up for the replacement of the over-age locomotives, wagons, carriages and the absolutely necessary track renewals. By the 31st March 1958, the number of locomotives had reached 10,025, of carriages 17,599 and of wagons 2,75,970.

- 40. Increase in employment in the railways generated by the plan expenditure.—The plan expenditure of such dimensions does, however, mean the creation of large volumes of employment in construction and ancillary industries. In Bihar, the benefits of this expenditure in form of employment come from the following items which also indicate the lines of improvements in traffic capacity:—
 - (a) Construction of the Mokameh rail-cum-road bridge which has been opened in 1959. The work was started in 1954.
 - (b) The construction of a large marshalling yard at Barauni.
 - (c) The improvement of lines capacity between Barauni and stations in North Bihar.

- (d) A new line linking Muri, Ranchi, Bokaro and Rourkela and so bringing Ranchi and the future township of Hatia on the Broad-Gauge system.
- (e) A Broad-Gauge link between Garhwa Road and Robertsganj in Uttar Pradesh.
- (f) Dieselisation of the Eastern Railway along the Grand Chord line. This, however, has got no direct employment value.
- (g) A proposed coach under-frame factory in the private sector at Barauni.
- (h) Expansion of the metre gauge wagon factory at Muzaffarpur.
- (i) Expansion of the metre gauge locomotive manufacturing capacity of the TELCO.
- 41. Direct employment in the Railways.—The figures of employment in the railway services in Bihar (with certain rectifications) compiled by the Employment Market Information Programme show that there were 1,09,659 employees in June, 1958 and this figure increased to 1,10,057 by September of the same year and to 1,20,185 by March 1959. It may be noted that this was the time when the traffic receipts had been receding and the authorities were restricting all possible new recruitments. With the recovery of traffic and receipt since then, we have reasons to believe that there would be scope for further expansion of employment.
- 42. Railway patronage of small industries.—We have examined the large scope for employment in the ancillary industries for the supply of railway equipment through small industries in the chapter on the Secondary Sector. We have noted how Bihar has not been taking sufficient advantage of the offer of the patronage of the Railway Board even with a price differential in favour of indigenous components, gadgets and tools on account of the backwardness of our engineering industries.
- 43. Recommendation regarding recruitment to the Railway Services.—The Educated Unemployment Sub-Committee has made a recommendation on the subject of recruitment to the Railway Services to which a reference is necessary here. It has been urged that the educated candidates from this State are handicapped on account of the fact that recruitment to class III and class IV services are made by authorities located outside this State which acts adversely for various reasons. It is, therefore, recommended that the Railway Board be requested to adopt the system of selection on a State-wise basis for securing a better distribution of the patronage of the Railways.
- 44. Employment value of roads.—Roads are important from employment point of view on three accounts. Firstly, the construction and maintenance of roads and bridges provide a large volume of employment on a very well distributed regional basis and for all classes of people including small entrepreneurs, skilled workers and unskilled workers. It accounts for employment in a number of ancillary activities as well from quarrying and brick-laying to the transportation of large quantities of road materials. Secondly, a good system of roads means employment in the transport servces by various kinds of vehicles for goods and passengers. Goods are carried by trucks and by the steel tyre or rubber tyre (pneumatic) bullock carts. Passengers are carried by motor buses as well as by the humble horse-drawn vehicles or cycle rickshaws. They all account for a large volume of employment. Moreover, these transport services also account for a large number of ancillary occupations including such important industries as the manufacture of motor engines and their bodies. Thirdly, we may refer to the stimulus given to production in both rural and urban areas to all the occupations in the monetised sector and to the broad influence in monetising and integrating the economy by stimulating the flow of goods into circulation,

45. Roads in Bihar.—While India as a whole compares not very favourably with other advanced countries in road facilities, Bihar has been backward even in comparison with the other states. Roads were mainly the responsibility of the District Boards and they managed it as best as they could with their poor financial resources. Moreover, North Bihar suffered for want of good road metalling materials. A new and national orientation of the road policy was formulated by the Nagpur Plan of 1943 for the post-war development of roads in India. On a compromise principle of area and population with regard to the regional distribution of roads, the plan formulated the target of 3.79 lakh miles of good roads for India giving 0.26 mile of road for every square mile of the area. The road plan for this State was formulated in 1947. The position of Bihar with an estimated population of about 380 lakh in an area of 70 thousand square miles in 1947 is brought out by the following table for the year 1947-48:—

Class of road.			Miles.		
P. W. D. roads	• •	010	•••	1,315	
Metalled District Board roads				1,674	
Unmetalled District Board roads			-	16,329	
Village roads			• •	11,355	
		Total		30,673	

- 46. Progress of roads after 1947.—The plan of road development for Bihar as formulated in 1947 was revised in 1949 and then further systematised in the First Five-Year Plan of the State. The plan has been worked out comprehensively and with such foresight and imagination that even during the first plan period a systematic inter-linking of all parts of the State along with an improvement of the links with the other states and with Nepal has been achieved. All subsequent instalments of road development can generally be fitted into this system except that a few new alignments may be necessary in some backward areas like Palamau. We may look into the broad features of the plan.
 - (a) An appropriate distribution of the investment over all the districts with special consideration of the areas which had been neglected has been achieved.
 - (b) Efforts have been made to make the roads of each region as well of the entire State fit into a unified system. Thus most of improved roads serve both as local as well as arterial roads.
 - (c) The plan has sought to link the State capital with the district headquarters. and the latter with the important places in the interior of each district.
 - (d) Efforts have been made to link markets with the producing areas.
 - (e) The linking and opening up of backward areas have been kept in view.
 - (f) Roads in the mining areas were given appropriate consideration.
 - (g) Improvement of roads around the sugar factories were specially provided for.

- (h) The original objective of the Nagpur Plan to link the interior villages with the nearest important roads had been kept in view and the construction of these links has been subsidised.
- (i) We consider the scheme of improving 552 miles feeder roads to rail-heads, which had to be dropped for want of funds, to be very essential and hope that high priority would be given to it. We make a definite recommendation in favour of this scheme on account of its high employment value both for bullock cart traffic as well as for the sake of railway out agency system which we are recommending.
- (j) We note with satisfaction the construction of large and small bridges but for which the roads would be ineffective for many months in the year during the monsoon. Apart from the bridges on the arterial roads, other bridges have now removed the isolation of different parts even of the same district from one another. We expect the bridging of the Gandak, of the Kosi and of other rivers to be achieved in the near future as also the materialisation of the scheme for bridging the Sone at Dehri. Apart from the Public Works Department bridges, the rail-cum-road bridge at Mokameh now links Nepal through the Tribhuan Rajpath and North Bihar with South Bihar and Bengal by road.
- 47. The deficiency in the road building programme of the State.—We note, however, that the Public Works Department is in charge of only one-sixth of the total road mileage of this State. The rest of about 24 thousand miles of roads including even most of the village roads are, however, motorable in fair weather and certainly suitable for the ubiquitous bullock cart. We, therefore, make a specific recommendation for an examination of the desirability of bridging the rivers and rainy season channels cutting the important non-P. W. D. roads. In course of our investigations into the scope for railway out agencies, we came across numerous instances of markets in the interior with appreciable volumes of incoming and outgoing traffic which are cut off from the rail-heads during the rains. Quite a number of these places have got sufficient inward and outward traffic to justify and support railway out agencies which would also provide stimulus to commerce and industry in those localities. We find that even though the roads are quite suitable for light and medium trucks, it is the want of a bridge or two of moderate size which prevents further development of the area.
- 48. Progress during the First and the Second Five-Year Plan periods.—It has already been stated that the plan of road development was so well conceived that all subsequent improvements after the First Plan would just come in as the elaboration of a comprehensive plan. We do not expect any great addition to the total mileage of the roads of all categories which comes to about 30,000 miles. There would be only marginal additions when certain isolated regions are opened up and industrial townships grow up in new areas. Progress has been and would be along the line of improving the existing roads and ordinary tracks by raising, widening and metalling them, providing them with bridges and linking up of the local roads with the more important roads, rail-heads and important river ports.

The improved roads have been placed in a number of classes mainly according to the source of their finance and they are now under the Public Works Department though the District Boards continue to control a large mileage of metalled and unmetalled roads. During the First Five-Year Plan a sum of Rs. 16.14 crores including a loan of Rs. 2.75 crores from the Government of India was spent. A very ambitious scheme of Rs. 44.72 crores was drawn up for the second plan period but this had to be cut down to Rs. 17.6 crores of which works worth Rs. 15.4 crores have been taken up.

The roads under the Public Works Department include the black-topped roads, metalled roads, gravelled roads and some kutcha roads taken over and awaiting improvement. The total mileage of all such Public Works Department roads was 1,315 in 1947, rose to 3,025 by 1951, reached the figure of 5,544 miles by 1956 and is expected to stand at 6,765 miles in 1961. They consist of the National Highways for which the Government of India assumed responsibility in 1947 and which are being continuously added to Inter-State Highways, State Highways, certain municipal roads and roads serving sugar factories. The plan for 552 miles railway feeder roads has not materialised as yet and we have already noted our emphasis on the value of this category of roads. The plan of road development is likely to be claborated further in view of the new plan worked out by the Chief Engineers of the states in a conference in Bombay in 1958 by which the road mileage target for India is sought to be raised from 3.79 lakh miles of the Nagpur Plan of 1943 to 6.57 lakh miles between 1961 and 1981. This plan would give India a road density of 0.52 mile per square mile of the area which is double of the target of the Nagpur Plan.

- outside the control of the Public WorksDepartment.—Out of categories roughly a little over about 30 thousand miles of roads of all 5,000 miles is under the Public Works Department and the rest consists of the metalled and unmetalled District Board roads and village roads. Most of these roads are motorable except for certain parts of the rainy season. They would become more valuable for transportation if more bridges are constructed on the rivers and channels cutting them as has just been pointed out. For the reasons already stated, we are of the view that while the surfacing of the roads may proceed according to the schemes of the Public Works Department, the improvement and better maintenance of the unmetalled District Board roads and of the wider village roads without incurring the heavy expenditure of metalling and black-topping and by means of earthworks and cheap designs of bridges should receive more attention. We wish to point out in this connection that most of the village roads have been made narrow on account of continuous encroachments by cultivators and we recommend they should all be measured and restored to the breadth shown in the original maps of the cadastral survey. We may sum up below the reasons for our emphasis on cheap kutcha roads and bridges:— विद्यागेन निपन
 - (i) They are five times the mileage of the Public Works Department roads.
 - (ii) Except in certain black soil parts of South Bihar, they can serve as all-weather roads with appropriate earthwork improvements and ordinary bridges.
 - (iii) They are very important in linking the interior villages with the markets, river ports and rail-heads and many of them are important through roads.
 - (iv) With the improvements proposed they would be motorable for light trucks and would be fully suitable for ordinary and improved bullock carts and horse-drawn vehicles.
 - (v) Their improvement and maintenance would provide valuable employment in the rural areas during the slack agricultural season.
- 50. Poor density of vehicles in relation to road mileage.—The large amount of capital invested in roads can be made use of fully only if there is an adequate number of vehicles using them. The case is just like that of the railways where the route mileage is made use of adequately only by the number of trains run and the train miles attained.
- Shri B. V. Vagh, an expert in road engineering and a leading advocate of road development notes that as against Rs. 975 crores invested in railways by 1955-56, India has invested Rs. 1,400 crores in roads and that the roads are not being utilised

sufficiently on account of the very low ratio of powered vehicles to the road mileage. Compared to 25 trucks per mile of road in U. K. India has only 1.56 trucks per mile even though this figure includes the truck equivalents of bullock carts at the rate of 60 carts for a truck. On the population basis, India has only 89 powered vehicles per lakh of the population against 9,097 in Malaya, 25,236 in Canada, 22,939 in U. K. and 37,998 in the U.S.A.

- 51. The use of the roads and the classes of vehicles.—A reference may be made to the fact that Bihar has about 3,000 miles of railways besides the roads and we have already noted that the different systems of transportation by railways, road and inland waterways are mainly complementary and partly substitutional. The case of the railways has been examined separately as also the system of transportation by inland waterways. For the utilisation of roads the main types of vehicles for goods and passenger traffic which create employment in transportation are—
 - (i) Trucks.
 - (ii) Bullock carts.
 - (iii) Passenger buses.
 - (iv) Horse-drawn vehicles for passengers.
 - (v) Rickshaws.
- 52. Powered vehicles for goods traffic.—A recent survey showed that on the 31st December 1957 the number of trucks registered in Bihar was 8,062 of which about 401 were off the road. About 40 trucks registered in West Bengal were also found to be plying here. There were twelve truck agencies operating in the State of which ten were registered in Calcutta and two in Patna. There is a predominance of one unit enterprise. The main difficulty in the way of the expansion of goods traffic by powered vehicles in India is due to import restrictions and the low rate of production within the country. This latter difficulty is gradually being removed by increasing the percentage of home made components of engines and the expansion of production. An estimate made at the beginning of the second plan period when the number of trucks was 4,145 expected the following rate of addition to the trucks:—

সভাৰীৰ সম	Ħ	Number expected to be added.
		1,000
• •		2,000
		4,000
• •		6,000
		7,000
••		4,145
1961	• •	24,145

53. Use of old and overhauled engines.—This expectation has not been realised for the reasons just stated. In view of the large demand for transportation, as already examined, and the slow growth in the supply of trucks, we recommend that the available supply should be utilised as effectively as possible. The Committee is not technically competent to risk any solid advice on the question of the use of old engines. But it recommends that Government may get the problem examined whether the limits imposed on the use of aged trucks, if they are thoroughly renovated, may be relaxed, and if such a renovation is technically possible. We are making this recommendation specially in view of the fact that whereas it was exxted that the traffic requirements of the second plan in Bihar would necessitate the addition of 206,000

vehicles on the roads, exchange difficulties have seriously restricted not only the import of vehicles and engines but also of components for assembly.

- 54. Removal of the handicaps of the road vehicles for goods traffic.—We have quoted from the observations of the World Bank Mission of 1956 to show some of the handicaps of truck transportation like heavy taxation and the impediments to inter-state plying. The Government of India have since then taken a number of steps to encourage road transportation and the more important of these may be mentioned here. The Motor Vehicles (Amendment) Act of 1956 relaxed a number of restrictions. Subject to limitations imposed by the strength of bridges, trucks have now been using trailers in increasing number in other states. The State Bank (Amendment) Act of 1957 now enables advances to be made to hire purchase organisations for loans to operators The Transport Commissioners' and Controllers' Conference at for buying trucks. Mussorie in 1957 took a number of other constructive steps. The Ministry of Transport has set up an Inter-State Transport Commission which, inter alia, licenses vehicles for inter-state routes. The Central Government is considering the recent Report of the Road Transport Reorganisation while a recent meeting of the Roads and Inland Water Transport Advisory Committee, which met at New Delhi, has passed a resolution advocating the setting up of a Transport Development Council.
- 55. Nationalisation of goods transportation by road.—For quite a large number of reasons, the Committee supports the declarations made from time to time in recent years by spokesmen of the Central Government against nationalisation of goods transportation by road. Our reasons are given below:—
 - (a) The greatest merits of road transportation by trucks, as already noted, are the personal contact between the customer and the haulier, the speed and efficiency of service, of collection and delivery from door to door and the avoidance of confusion and pilferage. It is feared that a large scale bureaucratic organisation taking over road transportation would not be able to offer all these benefits.
 - (b) Motor vehicles are costly and scarce resources to-day. They are better looked after and last longer under the small master's eyes and are much better maintained when personal interests are at stake.
 - (c) The small hauliers seek out customers and take the initiative for opening up places and roads which no state transport system would care for. Under private enterprise there would be scope for tramp trucks as well.
 - (d) Small units of road haulage would provide scope for the employment of small educated capitalists.
 - (e) For the last two reasons, the volume of employment in this business would be appreciably larger under private enterprise than under a nationalised system.
- 56. The Committee is in favour of small units.—In view of the points brought out in the preceding section, the Committee is in favour of small enterprises so that personal intensity of interest is maintained. Further, in order to overcome the drawbacks of very small units the Committee advocates the encouragement of associations and cooperatives of small and individual owners and operators into viable units both for transportation efficiency, welfare of the employees and appropriate insurance facilities for the vehicles, third parties and the employees.
- 57. Railway out agencies.—We refer to our recommendations for encouraging the opening of railway out agencies which we have made in the Chapter XIII (Section 71) dealing with the employment of educated persons.
- 58. Clearing and forwarding services.—We also refer to our recommendation again in Chapter XIII (Section 70) on the value of employment in organising clearing and forwarding services by small educated capitalists at railway stations offering business for at least one covered truck.

59. Passenger traffic by road.—In 1955-56, the number of passenger buses in Bihar was 1,471 according to one authority and 1,779 according to another. This figure includes the Rajya Transport buses numbering 426 on the 31st March 1956 to which 430 vehicles were to be added during the second plan period.

In view of the fact that the railways have not been able to plan adding more than 3 per cent per annum to the passenger traffic capacity and in view of the limited resources available for the expansion of the State Transport system, we recommend that private enterprise in motor bus service should be encouraged wherever the State cannot run its own service adequately. We also recommend that for better service on the State Transport system, private operators should also be licensed on some of the less important nationalised routes, to begin with. The existing law may have to be amended for granting the above facility to private operators. We should have liked to recommend very small units of one or two buses, but experts are of the opinion that even such small units should be encouraged to form themselves into viable units for long distance service. Our reasons for making this recommendation for a liberal policy in licensing private buses are the following:—

- (a) The railways themselves would like to be relieved of the responsibility for coping with short distance dense passenger traffic during certain peak hours.
- (b) Such peak load traffic has been growing as a result of urbanisation, growth of industrial townships, educational institutions and offices.
- (c) Local passenger traffic for integrating rural and urban economies would develop economic activities in rural as well as urban areas.
- (d) Linking of rural and urban areas would ease the housing problem in urban and industrial areas. In another chapter we have emphasised the need of rur-urban planning.
- (e) Small enterprises for running passenger buses would provide employment for small middle class entrepreneurs, educated persons and skilled as well as semi-skilled workers in larger number.
- (f) In view of the general dearth of powered vehicles, it is a very important consideration that the vehicles owned by small private masters are better looked after, maintained and thus have a longer life. We also recommend that once a policy decision has been taken on the above lines, the question may be reviewed after 10 years in the light of the circumstances then prevailing so that private entrepreneurs may be encouraged to make investments.
- 60. The great value of bullock carts.—In some of our sample villages within a radius of about 20 miles of important markets under the Rural Unemployment Survey we have found a very high level of employment as a result of bullock cart traffic. This is quite in keeping with an estimate of the Roads Consulting Engineer of the Government of India in 1943 who estimated that there were about 80 lakh bullock carts in the country and they were responsible for dealing with 100 million tons of goods which was greater than that of the traffic then handled by the railways or equal to the level attained by the railways before the Partition (The figures are for the absolute volume in tons and not for ton-miles). It has been estimated that the number of bullock carts has been increasing by 2 per cent per annum and the number was 109 lakh in 1955-56 and would be 120 lakh in 1960-61. It is estimated that 10 per cent of the bullock carts are professional hauliers making 20 miles a day for 25 days in a month. The rest of the carts are dual purpose vehicles operating for 20 days a month for five months in the year, when no ploughing is done, at only 15 miles a day. A bullock cart of average capacity has been rated at one-sixtieth of an average truck. Perhaps this comparison relates to the loading-cum-hauling capacity of the two types of vehicles. For rough calculations, the average load capacity of a truck is taken to be

6 tons because the trucks which are now being manufactured are for the laden weight of 5 tons and 7.5 tons or 140 and 210 maunds, respectively from which the tare (or weight of the vehicles) is to be deducted to arrive at the pay load. As to the bullock carts, we know that the pay load would vary according to the size of the bullocks and quality of roads. Professional bullock carts on good dry and firm kutcha roads easily carry 16 to 20 maunds against 6 to 12 maunds in the carts hauled by dual purpose bullocks. In the hilly regions, the bullocks are so small that 6 to 10 maunds is the normal load. Professional bullock carts in and around cities haul between 20 to even 25 maunds. The pneumatic tyre carts in the sugarcane traffic are supposed to carry 60 maunds, though overloading up to 80 maunds on good roads is quite common.

- 61. Bullock carts in Bihar.—Available figures show that there were 5,45,248 bullock carts in 1940 but the number was shown to be only 5,00,088 in 1945. According to the Livestock Census of 1956 the number of bullock carts was 6,25,373. The number of working bullocks in 1956 was about 62 lakh and this also gives us a figure of over 6.2 lakh bullock carts in 1956. There are reasons to infer that the number of bullock carts would be about 7,25,000 to-day. We think that the number of working bullocks has been increasing in recent years with the intensification of agriculture owing to improved irrigation facilities, reclamation and improvement of land and increase in the number of holdings. Moreover, a number of other factors would tend to increase the number of bullock carts of the professional haulier type at a greater rate. These are—
 - (a) improved roads,
 - (b) urbanisation and growth of collecting and distributing markets,
 - (c) increase of national income and increase in consumption of goods brought from outside in the rural areas.
 - (d) increasing use of pncumatic tyres specially in the areas of the sugar factories,
 - (e) under-employment in the rural areas and increase in the number of professional haulier carts,
 - (f) the discouragement of railways to short distance traffic, and
 - (g) the paucity of trucks.
- At 2 per cent per annum increase, the number of bullock carts by 1961 would be 7 lakh approximately.
- 62. Improvement of bullock carts.—We understand that various experiments are being carried on by more than one agency for improving the bullocks carts. So far the only tangible result has been the introduction of pneumatic tyres which has increased the loadability of carts by 300 to 400 per cent. This has been a great achievement and these carts are becoming very popular for haulage of goods. The cost, however, is high and only the well-to-do villager can afford to own it. In a meeting this year, the Transport Development Council has advocated the manufacture of such tyres at a smaller price. It also considered the use of flexible wheel axle and rubber bushes for wheels.
- 63. Loans for the purchase of commercial pneumatic tyre carts.—We recommend that Government may consider the desirability of advising the Co-operative Department to consider the question of advancing loans to small and enterprising holders of land for the purchase of pneumatic tyre carts and suitable bullocks in the sugar factory areas and in the villages near centres of commerce and near railway stations with large goods traffic. We have calculated that such a loan amounting to about one thousand rupees may be easily paid off in two or three years. We consider that in order to make the borrower feel a stake and responsibility in the maintenance of the assets, a loan of 75 per cent of the investment would be more desirable and would also make the recovery easier.

64. EMPLOYMENT IN ROAD TRANSPORTATION.

Employment in the road transportation services is both direct and indirect. The direct employment is in operating the vehicles and the indirect one in maintenance. We need not consider here employment in the manufacture of trucks or carts which have been taken cognizance of separately.

64.1. Employment in transportation by bullock carts.—The Census figure of 1951 includes in one Sub-Division the number of all categories of road transport workers and this number is rather small, the total being only 41,107. Evidently most of the bullock cart owner-drivers returned themselves under the occupation of agriculture as the more respectable one. If the estimate of there being 7.25 lakh bullock carts in the State is accepted and the formula of one-tenth being professional hauliers applied, then we would get at least 72 thousand persons eugaged mainly in this occupation along with a certain percentage of the rest of about 6.53 lakh bullock carts engaged in part-time transportation. The fact is that in certain seasons after the harvesting of paddy, jute, etc., and during the cane crushing season there is an increased demand for transportation which is met by the part-time workers. So if we adopt the usual formula of one-tenth of the bullock carts being mainly professional hauliers and mine-tenth taking up transportation for five months in the year we get the following calculation of units of full time employment:—

Full time 72,000 cartmen	~153L~	72,000 man years.
Part-time work of $6.53,000$ in the year.	carting of about 5 months	2,72,083 man years.
	Total	3,44,083 man years.

64.2. Employment in truck and bus transportation and other minor vehicles.—As to the figure of employment in the working of the trucks and the passenger buses a more dependable estimate may be arrived at. Taking the buses first at the existing number of about 1,800 and the operating staff on the basis of two shift work of eight hours, we get the following number:—

Drivers	• •	यस्याम्ब र	12러		3,600
Conductors	••	• •		• •	3,600
Leave reserve or	badli				720
		Total	• •		7.920

This number does not include the office staff, the shed staff including cleaners and the workshop staff. However, all the buses do not work for 16 hours and in the Rajya Transport and in the larger private units there is the pool system so that a smaller number of drivers and conductors than this estimated number is employed. Figures of employment in the private services are not available, but it is estimated that the total number of employees in both public and private lines exceeds 10,000.

- 64.3. Employment in other passenger rehicles.—No reliable estimate of employment in the operation of taxies, auto-rickshaws and paddle-rickshaws is available. Taxies are registered along with private cars. Each rickshaw gives employment to two or even three operators in shifts.
- 64.4. Employment in goods transportation by trucks.—As regards employment in operating the trucks, in the case of the one truck units usually two persons are 39 Lab.—54

employed on each truck regularly apart from the persons engaged in loading and unloading. Hence, taking those into consideration who are likely to be employed occasionally in "budli", the number of directly employed persons would come to about 32,000. The figures of the employment exchanges, however, show an appreciable volume of unemployment among the car, truck and bus drivers.

65. The inland waterways of Bihar.—Inland waterways consist of the navigable stretches of rivers and canals. Canals are not important for the purpose of navigation in Bihar as the only navigated portions are the Dehri-Arrah, Dehri-Buxar and Daudnagar-Khagaul stretches of the Sone Canal. The river system of Bihar with the Ganga cutting across the State from West to East, and so many tributaries joining it at different points all along the course from North and South, provides a comprehensive system of waterways. During recent decades since the last century, the navigational value of the Ganga for large steamer to the west of Buxar has diminished owing to the diversion of water to irrigation canals. Even then the navigability of the Ganga by large steamers has not been affected very much in Bihar. The rivers of the Indo-Gauga valley have been the means of transportation from times immemorial. There is evidence to show that during the early periods of history, the Ganga was navigable right up to Pataliputra by sea-going vessels. This should not surprise us if we compare that, on the return journey, a large part of the Greek army of Alexander was embarked at inland river ports on the Indus in the Punjab and sailed down the Indus and up the Persian Gulf to the mouth of the Euphrates. We read of a navy of the Mauryas based on Pataliputra. We find the rivers being used for trade and even military purposes to some extent under the Moghuls. When direct trade was established between Bihar and Europe by the Dutch, the French and the English, the Ganga was used as the main highway by them. Even as late as 1854 large boats 120 feet long and 22 feet wide usually plied between Allahabad and Calcutta. Before the coming of the railways, this route was considered so important that sometime before the construction of the Grand Trunk Road was taken up, a scheme for developing 200 miles of river navigation systematically in the Bengal Presidency was worked out. But finally this scheme was given up in favour of the Grand Trunk Road for military reasons. Steam navigation, however, on the Ganga was introduced in the thirties of the last century and it rendered very valuable service during the Mutiny. Although the coming of the railways reduced the importance of river navigation to a secondary position, certain private concerns took up the steam navigation of the Ganga and also of the Brahmaputra after the development of jute and tea industries. By the last decade of the last century the fall in the level of the Gauga during the summer season limited the western stretch of navigation. But the business was quite profitable and in 1899 the Indian General Steam Navigation and Railway Company was registered. It entered into a workin; agreement with the River Steam Navigation Company and the Bengal Assam Steam Navigation Company for the operation of the Ganga services as the Joint Steamer Companies and continued to render useful service in supplementing transportation by railways in the lower provinces until the end of 1957. It is noteworthy that the development of steam navigation or of the railways did not materially affect navigation by large, medium and small country boats. We get a very detailed account of the transportation in the different rivers of Bihar, Bengal and Orissa from Hunter's Statistical Accounts of the Bengal Districts published a hundred years ago. They were compiled out of the reports of the District Officers and no such comprehensive data have been collected since then.

66. REVIVAL OF INTEREST IN THE INLAND WATERWAYS IN RECENT YEARS.

66.1. Enquiries before the Independence.—In spite of the development of the railways, interest in river navigation was revived every now and then into the details of which we are not able to go. Economic progress up to the first decade of the present

century was slow and the railways were able to meet all the transport requirements. However, the period after the First World War saw the growth of a number of In 1929, the Government of Bengal appointed a Committee to large industries. examine the work of the Irrigation Department of Bengal in respect of irrigation, maintenance of waterways, resuscitation of rivers, control of floods and drainage of water-logged areas and to advise Government on the desirability of creating a separate department for waterways or a Provincial Waterways Board. This consideration of the importance of waterways was put on a national basis when the Federation of the Indian Chambers of Commerce addressed a representation in May, 1929 to the Government of India on the subject of a central agency for an enquiry into inland waterways and for the formulation of a national waterways policy. The Government of India expressed its inability to take up either of these questions. A Council of State resolution on the subject of river training also produced no result. The coming of Independence revived interest in the inland waterways. In 1946-48, Dr. B. R. Mishra of the Patna University submitted a comprehensive study on river navigation in this State to the Government of Bihar even before the Central Government developed an interest in the subject. In 1949, a rapid review of the position was conducted by the Central Government.

66.2. Enquiries of Mr. Popper and Mr. Surie.—In 1950, Mr. Otto Popper, an E. C. A. F. E. expert conducted a comprehensive survey of the possibilities of inland waterways in the lower provinces on behalf of the Government of India and made a number of specific recommendations because he found that India's numerous waterways could become "equal partners to her railways." He pointed out the "enormous potentialities" of the country boats for transportation to the extent of many million tons as against 2.5 million tons by powered river crafts. Mr. Popper laid very great emphasis on river conservancy to keep open navigable channels by removing silts, on preventing silting and on the provision of river ports. Mr. Popper's investigations were followed by a further enquiry in 1952 by Mr. J. A. Surie, a Dutch expert deputed by the United Nations for an on-the-spot study of the Ganga-Brahmaputra navigation schemes. He recommended the use of shallow draft tugs for towing barges in these rivers with a view to develop transportation of cheap and bulky goods at low cost.

66.3. The Ganga and Brahmaputra Water Transport Board.—In 1952 the Ganga and Brahmaputra Water Transport Board was set up under the control of the Central Ministry of Transport with representatives of the Governments of Uttar Pradesh, Bihar, West Bengal and Assam on the Board to co-ordinate the activities of the participating governments in the development of inland water transport, maintenance of navigational facilities, administrative problems arising out of registration and licensing of inland steam vessels, fixation of passenger and goods traffic rates, etc. The importance of the functions of this Board is brought out by the proceedings of one of the very first meetings in December, 1952 when the questions of the headwater supply of the Hooghly river, the effects of the Damodar Valley Corporation Projects on the Ganga barrage and the problem of all the year round navigation from Calcutta to Lalgola for a through navigation on the Ganga from Calcutta to Bihar and also to Assam entirely through Indian territory by means of a link between the Ganga and the Teesta were considered. The Board took up the recommendations of Mr. Suric and has proceeded with experiments and pilot projects of navigating shallow waters by means of barges and tugs. The closure of the steamer services by the Joint Steamer Companies from 1958 has thrown a heavy responsibility on this Board which it is seeking to meet. Moreover, the Board has been considering the subject of river navigation more comprehensively and is taking steps to establish regular transport links for the industrial and commercial areas of Uttar Pradesh with the main Ganga route.

66.4. Further enquiries following deterioration in the services of the Joint Steamer Companies after 1950.—Meanwhile the Government of India appointed the Lokur Committee in 1954-55 for further investigations and in 1957, the Gokhale Inland Water Transport Committee enquired into the problem of co-ordinating railway and inland water transportation for the whole of India.

While these developments were going on, a crisis was created by the decision of the Joint Steamer Companies to withdraw their services on the Ganga with effect from January, 1958. They had already been slowly withdrawing their steamers from the Indian rivers and transferring them to East Pakistan over a number of years and the Steamer Mazdoor Union had been agitating over this subject ever since 1954. The Government of India, therefore, appointed a Committee under Shri R. K. Mitra in 1957 to assess the quantum of traffic between Calcutta and Bihar and between Bihar and Assam by waterways and to recommend alternative arrangements when the Joint Steamer Companies withdrew their services with effect from January, 1958 as they have done.

67. THE NAVIGABLE STRETCHES OF THE BIHAR RIVERS.

- 67.1. The relative meanings of navigability.—The term navigable stretches is a relative one. There are stretches of the big rivers which are navigable throughout the year for steamers and boats. Then there are stretches navigable by large and small boats but not by steamers. Next, there are stretches which are navigable by small boats all the year round. Next, there are many rivers and streams which become navigable by large boats over fairly long stretches and link the Ganga with the interior regions. Finally, there are the hill streams which are difficult to navigate except for the small stretches on level land.
- 67.2. The Ganga as the main line of inland waterways.—The Ganga is the main line of the inland waterways not only for Bihar but also for Uttar Pradesh, and West Bengal and even for Assam if the Ganga can be linked with Brahmaputra riu the Teesta. Moveover, the importance of Patna as the central river port should be realised. The importance of transport between Calcutta and the interior regions of the Ganga valley both for domestic trade as well as in connection with exports and imports through this major sea port serving the Ganga valley and Assam should be noted. Nothing would be more desirable than to have a link by means of inland waterways between Calcutta and Allahabad via Patna and between Calcutta and Assam along the Hooghly, the Ganga, the Teesta and the Brahmaputra. But the most serious handicap of a direct Hooghly-Ganga route is that a stretch of eight miles of the Bhagirathi linking the Hooghly with the Ganga gets annually silted up. The result is that no through navigation is possible in summer. The alternatives are that transport between Lalgola, the river terminus on the Ganga and Calcutta has got to be arranged either by rail with transhipment to and from the river crafts on the Ganga at Lalgola or by the all water route via Pakistan, adding a detour of 400 miles. This brings out the importance of cutting a canal of 8 miles to link the Hooghly with the Ganga for all the year round navigation. We have not got information if the Ganga-Brahmaputra Water Transport Board has examined this or any other alternative scheme. The West Bengal Government have sanctioned the excavation of a 400-feet canal at Bishwanathpur in Murshidabad district to divert water from the Ganga to the Bhagirathi just for improving the level of water in the Hooghly without in anyway improving the chances of a through route.
- 67.3. Patna as the major river port on the Ganga and the water routes radiating from Patna.—On the main waterway route, the Ganga between Allahabad and Lalgola is 500 miles. But to the west of Buxar, the Ganga again becomes shallow. Hence, the position regarding navigation has been as noted below and this also brings out

this length between Lalgola and Allahabad the Ganga passes through rich regions which are industrialising rapidly and have been commercially important for ages. At Patna the Ganga is joined by the main tributaries like the Saryn, the Gandak, the Sone, the Poonpoon and the Sone Canal from Dandangar. Moreover, the Ganga is navigable by large steamers only up to Patna. Patna is also an important point on the railway and the coad system besides being a river port from which various waterways branch off. In spite of the Mokameh bridge, the importance of Patna as another important inter-link point between North and South Bihar is bound to continue.

Throughout the present century the Joint Steamer Companies were running the Ganga Despatch Service with large steamers linking West Bengal with Bhar by navigating the Ganga up to Patna and providing transhipment for Bihar at Mokameh Ghat, Semariaghat and other places. From Patna (Digha) they were operating the Digha-Baxar and Digha-Baxhaj (on the Saryu river) feeder services with steamers of shallower draught.

From Patna, large and rich centres of industry and trade of the Uttar Pradesh are linked by means of country craft transportation. In this way Patna is linked with Allahabad (332 miles) and with Bahramghat (200 miles). Links are established with Kanpur, Lucknow and other places through Allahabad and Bahramghat.

- 67.4. The Ganga-Teesta-Brahma putra link.—The Ganga-Brahma putra Water Transport Board has been considering the question of linking the Ganga with the Brahma-putra through the Teesta for an all-India direct water route without passing through Pakistan. The scheme is likely to require a large capital expenditure and not much is being heard further about it. But it would be a very important scheme for interlinking all the eastern states of India if the two missing links, the one between the Hooghly and the Ganga and the other between the Ganga and the Brahmaputra through the Teesta are established. For the present, traffic for Assam on the Ganga has got to be transhipped at Maniharighat to the rail.
- 67.5. Canga as a waterway for local traffic.—Apart from serving as the main line of inland waterways, the Ganga has got numerous bank to bank services and short rm services by country boats. Apart from 54 large ghats there are numerous small ones. Moveover, as already noted, the numerous rivers joining Ganga from north and south are like branch and feeder transport lines linking the interior of the districts with the towns on the Ganga. We know how important the daily traffic between Patna and other places north of the Ganga and Marufganj in Patna City, an important market served by country boats and linking it with the interior areas of the Tirhnt districts is. The Ganga-Brahmaputra Water Transport Board has been taking steps to develop this link.
- 68. The Saryu.—The Saryu river which joins the Ganga near Patan was one of the feeder steamer routes of the Joint Steamer Companies up to Barbaj. This river is always busy with country boat traffic linking Saran with the important ports up to Lalgola and for traffic across the river with Shahabad and Uttar Pradesh districts. The Ganga-Brahmaputra Water Transport Board has given a high priority to the development of this route.
- 69. Other rivers.—The other rivers of the State are not suitable for powered crafts except that a survey may reveal how far and exactly in what seasons they may be profitably navigated by means of tugs and barges. It is possible that certain lower stretches of the large number of the feeders of the Ganga can be utilised more

successfully. In any case, there are large stretches of these feeder rivers which are very important for commercial navigation by country crafts of different designs and equally so for employment values.

- 70. The standak and other rivers.—This river is navigable throughout the year by 100 muntl bows and by very much larger ones when the water level is higher. The Mahi and the Daha are navigable only during the rains as they are purely rainy season rivers. The Baglimati, the Kamala, the Balan and the Burhi Gandak rivers as also the Kosi are navigable for certain long stretches all the year round.
- 71. The rivers of South Bihar.—From the southern districts of the State the Ganga is joined by Dargawati, the Shuara, the Kao, the Dhoba and the Sone rivers to the west of Patna. The streams joining the Ganga east of Patna are the Poonpoon and the Phalgu.
- 72. The virus transportation crafts.—Broadly the vehicles for transportation by rivers may be divided into the powered and the non-powered crafts. But even more useful would be a classification according to the draught. Thus while large steamers as well as the tags of barges are powered crafts, the latter can sail in shallow channels as well. We may classify the river crafts in the following way:—
 - (a) Steamers of the large and medium size. The Joint Steamer Companies used large steamers for the Ganga Despatch Service between Rajmahal and Digha and then smaller ones for the Digha-Buxar and Digha-Barhaj feeder services.
 - (b) Powered tugs and barges.
 - (c) Country boats of large and medium size upto 100 tons carrying capacity drawing six feet of water.
 - (d) Smaller boats of 5 tons capacity drawing two feet of water.
- 73. Through steamer service in Bihar.—The Joint Steamer Services had been doing useful work, but had not been taking interest in developing the service for a decade before closing their business in 1958. One of the reasons was that the scope for their activities was greater in East Pakistan. Secondly, the missing link between the Ganga and the Hoogaly rivers has been a very serious handicap to the Calcutta-Bihar traffic which might account for most of the through river traffic. Now that the old steamer service has been closed it is for consideration in what form the gap is to be filled up. A few months ago, the West Bengal Government sanctioned the construction of a canal link for diverting water from the Ganga to the Bhagirathi at Bishwanathpur in Murshidabad district. But this scheme is meant only for increasing the supply of water in the Hooghly. It is, however, obvious that the bold step of opening up the small stretch of silted channel at the headwater of the Bhagirathi is necessary both for Bengal and Bihar. If this scheme materialises the Ganga-Bhagirathi navigation route would become a very valuable complement to the rail and road traffic. It would necessitate more intensive conservancy service to keep the river channels open, but this would be necessary to a lesser extent even if the tug and barge system is adopted. The latest estimate of the steamer traffic is that it handled only 50 per cent of the long distance traffic and the rest was carried by country boats. We have not been able to g t complete figures of traffic of all the agencies of the Joint Steamer Companies. But taking the figures of the Digha agency stations and adding 40 per cent which was the accommodation allotted for the Monghyr agency

stations, it has been estimated that the steamers carried the following maundage of imports and exports in certain years: --

Year.			Maunds of exports and imports of Digha and Moughyr agency (in lakh).
1930	• •	 16.22	27.05
1938		 43.78	Not available.
1939		 33.48	56.80
1945		 13.64	22.73
1947	• •	 22.76	38,00

As the barge navigation scheme of the Ganga-Brahmaputra Water Transport Board is still in the experimental stage, it is not possible for us to find out the ultimate magnitude of the enterprise, the volume of traffic which it is likely to handle and the employment which would be generated. In 1957, the first experiment was being made with units of three 125 ton barges and a diesel tug with a carrying capacity of 400 tons per unit. Taking into account the volume of traffic carried by the Joint Steamer Companies, the estimate that it was only 50 per cent of the long distance traffic, and finally considering the growth in industrialisation, constructional activities, level of consumption and targets of agricultural production, we feel justified in holding that the country boats have got a great scope for transportation and employment in both construction and operations.

- 74. Kinds of employment in river navigation.—The development of river transportation in any form would necessitate the provision of important overheads which were also pointed out by Mr. Otto Popper. These are summarised below:—
 - (a) Provision of Ghat or river port for littles. There were 54 such glads of the more important class and the number would increase with increase in traffic and the development of approach roads linking ghats with the railheads and roads. Mr. Popper rightly observed that in view of cheap labour, costly mechanical appliances like cranes, etc., would not be necessary here but landing facilities should be provided.
 - (b) In case of a revival of service by powered crafts, a pilotage service and the employment of markers, snagmen and lightsmen would be necessary.
 - (c) River conservancy would be necessary in every case.
 - (d) The development of navigation by powered crafts, whether steamers or barges, workshops would create employment for skilled and educated persons.
 - (e) The development of large scale transportation on rivers by powered crafts would require the provision of pontoon moorings, warehouses and other facilities which would require the employment of skilled workers.
 - (f) The services of steamers require skilled personnel of drivers, cleaners, tandails, sukanis, sarangs, masters and other deck and engine room crew. Similar personnel trained in a different technique would be required for the barge services.
 - (g) The services of a large number of porters for bading and discharge work and of trucks and bullock carts for terminal services would be called for.

75. The place of the country boats in the transportation system.—We have already pointed out the reasons for believing that the volume of low grade traffic generated by our economic growth may not be coped with fully by the powered crafts. This is expected to happen both on account of the increasing demand, as noted, as well as on account of the limitations on the supply of powered craft. Moreover, the long tradition of the construction of boats and their operations on long routes right down to Goalundo before the Partition is an asset which we should conserve and utilise in view of the employment situation in the country.

So while the Ganga-Brahmaputra Water Transport Board has been mainly emphasing the development of powered shallow draft barges common in West Europe, we wish to point out the necessity and value of developing the small enterprises in transportation by country boats. We have noted how the river stretches are of various degrees of navigability for various periods in the year and according to various types of crafts. We tried to draw up an account of the standard types of country erafts, but we found that they vary so much from place to place that any detailed account would take up much space. The broad principle is that each locality has evolved its own type adapted to the local conditions for local traffic while there are certain standard types for through traffic in deep waters. Broadly, we find that 5-ton boats can draw as little as 2 feet of water while a 100-ton boat would require at least 6 feet of water. We are giving below the economic analysis of a few selected types of boats.

76. Economics of the country boats.—The subject examined in this paragraph calls for more data than we have got and also a closer examination of the figures of the prices or costs of boats as well as of loadability and mileage performance.

We find that the smaller crafts are of 2 tons, 5 tons, 10 tons and 20 tons capacity. The price ranges from Rs. 800 to Rs. 1,200 depending on the size. The smaller crafts of 5 tons or 140 maunds capacity are ubiquitous like the bullock-cart, can navigate in shallow waters even two feet deep and may be managed by two persons.

Old records of the first half of the last century mention boats which were 120 feet by 2 feet plying between Calcutta and Allahabad. Even now what are known as the Bhor and Hala boats in Bengal carry 1,500 to 2,000 maunds and require at least 6 feet of water. Any standard 100-ton capacity boat requires 6 feet of water to navigate in.

We may refer to the war-time experience of the construction of a new type of boats known as landing crafts which were built in Bihar for the army in large numbers. They were very carefully and scientifically planned as types suitable for diverse conditions. It is for consideration if these types should be re-examined for their merits for transportation purposes. They ranged in size from $187' \times 38'$ $9'' \times 7'6''$ to $152' \times 29' \times 8'$ 6'' and were rated at 372 to 590 tons capacity.

The boats usually operating in the Ganga are of three types. The large ones are $49' 6'' \times 18' \times 4' 6''$ costing about Rs. 4,000 and require a crew of 6 persons. These are able to carry a pay load of eleven hundred maunds. The medium ones are $39' \times 8' 3'' \times 3' 9''$, costing about Rs. 1,400, require a crew of about 4 and carry proportionately less load. The smallest boats are $25' 6'' \times 9' \times 1' 10.5''$ in size, can be manned by 2 persons and cost proportionately less to build.

77. The ton-mile capacity of the boats.—It has been found that the country boats can travel on an average 10 miles a day, taking downstream and upstream journey together and can work for 20 days in a month. Thus each craft is capable of covering 200 miles a month and 2,400 miles in the year. Thus on average 100 ton

boat is capable of performing 2,40,000 ton-miles or one-fourth million ton-miles in a year while a 1,100 maund (about 40 tons) boat would account for 96,000 ton-miles in a year.

78. The class of traffic handled by the waterways.—We have not been able to get any reliable statistics of the commodities transported by the river crafts. It has, however, been gathered that they consist mainly of the following commodities:—

- (i) Foodgrains,
- (ii) Bamboo and timber,
- (iii) Salt,
- (iv) Straw and fodder,
- (v) Sugar and gur,
- (vi) Jute,
- (vii) Coal,
- (viii) Stone chips,
 - (ix) Sand, cement, and lime,
 - (x) Hides and skins,
 - (xi) Machinery,
- (xii) Iron and steel goods,
- (xiii) Hollow ware and utensils,
- (xiv) Goats, cows, buffaloes and other animals,
- (xv) Fruits, vegetables, onion, garlic and other spices, and
- (xvi) Dairy produce.

The list would clearly show that some of the commodities like fruits, fresh vegetables and dairy produce are transported only for short distance or as bank to bank traffic. Other commodities are carried over long distances. It is usual to wait for the rainy season when the smaller rivers become navigable to transport large quantities of coal, sand and timber to the interior villages.

79. Training in river navigation.—The State Department of Labour had prepared a scheme for starting a well-equipped training institution for powered craft personnel as early as 1950 in view of the fact that most of the personnel of the steamer companies were Pakistani nationals and the scheme was also expected to increase the scope for the employment of educated persons. The scheme had to be dropped later on for want of funds. But it has been considered every now and then thereafter and has also been endorsed by the Educated Unemployment Sub-Committee. In some preceding sections we have tried to show the importance of Patna as the most important river port of Eastern India on the Ganga. We, therefore, recommend that the scheme of starting a training institution for fleet personnel be re-examined in the light of the requirements for navigation by the special type of crafts which is being experimented with by the Ganga-Brahmaputra Water Transport Board. We have already indicated the kinds of personnel which would be required for organised river navigation enterprises.

80. Encouragement to the country boat enterprises.—No organised training facilities are called for for those manning the country boats. There are families and classes 39 Lab.—55.

of people who are traditionally engaged in the business and the children grow up in the trade by practical experience.

The industry of boat building, however, deserves encouragement. A scientific examination of the traditional types may be desirable.

Again, in South India powered country boats are coming into use. The ton-mile capacity of the boats is enhanced enormously by mechanisation and many kinds of traffic which avoid the traditional crafts on account of their slow speed are coming to them. They provide valuable employment to small capitalists and those engaged as workers in river navigation. It has been ascertained that powered boats of $25' \times 12' \times 10'$ to $20' \times 8' \times 8'$ sizes are in general use and cost rupees five thousand to rupees four thousand for fully equipped vehicles including the engine.

81. Control of the ghats and the ferries.—Following the recommendations of Mr. Otto Popper, we have already emphasised the need of developing the river ports and of the loading, unloading and mooring facilities required. For this reason we have got to make some specific recommendations for the control of the ghats and the ferries without which all developments would be held up.

The existing system is that the smaller ferries or ghats are settled with contractors by the District Boards and the larger ones by the District Magistrates. The small private ferries controlled by the Zamindars have now come to the Revenue Department after the abolition of Zamindari.

Our enquiries confirm the results of the investigations of the Labour Department which collected data for the Mitra Committee in 1957. It is surprising that the old system of settlement with contractors, who are in many cases pure rentier, collecting profits without discharging any functions is still continuing. While many of the contractors maintain river crafts for ferry service, sub-letting the contract in whole or split up into parts is quite common. The most important task of maintaining ghats and landing places is not only not done at all but the existence of the contract system prevents the Government from feeling any sense of responsibility for the work. Moreover, the collection of tolls from private boats even when no service is rendered at all puts a needless and discouraging burden on all the boat traffic passing through the zones of the contractors. Thus except for the provision of some crafts which account for rather a limited service only, the system is exactly like the farming out of mahals or sources of revenue which was introduced here alongwith the Zamindari system by the East India Company. We recommend that the entire system be reconsidered with a view to place the responsibility for developing the river transport facilities on Government.

- 82. Registration of country crafts.—We are not averse to a system of registration of all country boats generally used for commercial purposes with exemption from any fee for those used for purely local purposes like the bullock-carts engaged in farm work. In order to prevent illegal exactions and also to secure more detailed information, we recommend the issue of free registration tokens to the latter category of boats. The argument is that if the Government are to take up the subject of encouraging the business of operation and building of country river crafts and of developing the river port facilities, they should have adequate statistical data. Moreover, for the benefits extended, a moderate annual fee would not be burdensome, and may even mean a relief, in view of the tolls levied by the ferry contractors.
- 83. Employment in transportation by country craft.—We have noted how the Census figure of those engaged in transportation by water appears to be inadequate even though it included the employees on the powered vehicles. No other figures are available.

But an approximation may be worked out on the basis of the estimate that the Joint Steamer Companies were carrying only about 50 per cent of the river traffic on long routes. In 1947, these steamers carried about 38 lakh maunds of goods. The deterioration in their service must have inhibited traffic to some extent and would transfer part of it to rail, truck and country boats to the extent of the availability of these facilities. Taking this figure of 38 lakh maunds as a basis we may calculate that on the stretch of 500 miles between Lalgola and Allahabad, each country craft of 100 tons would be covering 200 miles in the month or 2,400 miles in a year or would roughly have a turnover of 5 times in the year. This is based on the estimate, already given, of navigation at the rate of 10 miles a day for 20 days in the month or 200 miles in the year. Hence each 100-ton boat would account for a load of 500 tons or 14,000 maunds in the year. Thus an annual traffic of about 38 lakh maunds would account for the employment of about 271 one-hundred-ton boats employing a crew of about 1,600. This number would be employed in addition to the much larger volume of employment on the smller crafts in bank to bank or short run traffice.



CHAPTER XII.

EMPLOYMENT IN COMMERCE AND SERVICE.

- 1. The place of commerce and services and their economic functions.—We have examined employment in the Primary and Secondary Sectors of the economy separately. We saw that the nature of the functions performed by transportation, power and water supply is such as to justify a separate consideration owing to their being the overheads of the entire economy. We noted in this connection that commerce performs a similar overhead servicing by connecting the producers of raw materials with the manufacturers and the manufacturers with the consumers and the monetary and banking system provides the service of transporting value along with other functions. Then there are the economic functionaries who do not produce any material goods but render direct services like lawyers, teachers, etc. Similarly, those who are employed by the State in administration render various kinds of services to the community which do not pass through the price system but constitute the social overheads. After having considered the public utilities and other economic overheads in the last chapter we may now examine the employment position in commerce and services.
- 2. Commerce and Services in the Census Divisions 6, 8 and 9.—These classes of occupations are accounted for in the Divisions 6, 8 and 9 of the Census and they account for a very large proportion of the total of employment in the non-agricultural activities. Thus we find that in Bihar (according to the Census of 1951 before the transfer of certain areas to West Bengal), out of the total of 16.16 lakh persons (male and female, rural and urban) in all non-agricultural occupations, 3.76 lakh were accounted for in Commerce in Division 6 while 1.12 lakh were in Division 8 in Public Administration, Medical and Teaching professions and 4.35 lakh were in other services, making a total of over 9.23 lakh.
- 3. Employment in Division 8 in Public Administration, Health and Teaching services.—
 There has been a considerable increase in all these social overheads since the year of the Census. Employment in Public Administration increases with the increasing functions of the Governments in a welfare and service state even apart from the employment in the state extensions which we are not considering here. Similation is a service organised through state efforts while teaching and medical services are rendered through the state as well as directly through private channels. All these constitute social overheads, and although they have an indirect economic value, their magnitude is determined by the level of national income which has got to support them and pay for them. The expenditures on them constitute social consumption.
- 4. Employment in Commerce and Services in Divisions 6 and 9.—Employment in these two spheres takes place through private enterprise and the price system. In 1951, the total employment in these two was of 8.11 lakh persons. This large percentage out of the total of 16.16 lakh persons in the entire non-agricultural sector is explained by the facts that, firstly, these occupations constitute the servicing of the large number of consumers equal to the total population, and secondly, this servicing cannot be organised on a large centralised scale because ultimately each consumer or the consumer family has got to be attended to separately. Thirdly, the volume of consumer servicing increases not only with the growth of population but also with the growth of income and of the diversification of consumer goods and services. In this connection it may be noted that even though the development and modernisation of the economy which accounts for increase in income and diversification of goods and services also leads to large scale wholesaling and large scale retailing by chain stores, departmental stores

and mail order stores, there is also an increase in the number of small self-employed middlemen.

The fact is that the ultimate objective of all production of goods is to reach the consumer and there are many economic functions which have got to be performed for it after the mere manufacturing processes have been completed. The extent of these services is brought out by the fact that on the average, transportation, wholesaling and retailing add as much as or even more than 100 per cent to the cost of producing or manufacturing commodities. Nor is this feature of a large number of persons being engaged in the auxiliary services besides manufacturing a peculiarity of a backward economy. Even in the U.S.A., out of the entire non-agricultural workers, 13.76 millions were engaged in manufacturing against 36 millions in the tertiary sector.

- 5. The rate of growth of employment in Commerce and Services.—We have not as yet collected any accurate data to establish the correlation between the growth of income and the resultant increase in employment in commerce and services. The Planning Commission accepted the formula that to the employment calculated as generated directly by the investments, 52 per cent should be added for increase in employment in commerce. We believe that there is need for some investigations in selected localities, urban and rural, to establish the rate at which growth in income and consumption calls for and supports the servicing of the economy by trade and commerce. There is generally a limit beyond which the ordinary family shop cannot cope with the task of serving an increasing number of customers. Moreover, even before this limit is reached for the existing shops, there are persons on the look out as new entrants as a market becomes richer or new centres of activity and population grow. The very fact of a low standard of living enables a larger number of persons to be self-employed in petty trading than would be possible otherwise and constitutes a relief to the labour force in the transitional stage.
- 6. Classes of the employment examined in this chapter.—We see that the employments considered in this chapter do not constitute a homogenous class. However, they may be arranged in three distinct categories:—
 - (1) Employment in the administrative services of the State and of the subsidiary authorities like the Local Bodies.
 - (2) Employment and self-employment in commercial and servicing establishments like wholesale and retail shops, restaurants, servicing workshops, etc.
 - (3) Employment in rendering services directly as by teachers, lawyers, medical men, other consultants, priests, domestic servants, etc.
- 7. Employment in commerce and personal servicing.—The Census tables of Divisions 6 and 9 of the non-agricultural occupations are reproduced below. It may be noted that employment in the teaching and medical professions is not included in these Divisions and are accounted for in Division 8 along with employment in Public Administration which has been considered later on. The number of independent or self-employed men and women is given in the last two columns.

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			Total.		Emplo	yers.	Emplo	yees.	Independen	t workers.
Division and Sub-division	1.	Males.	Females.	Total.	Males.	Females.	Males.	Females.	Males.	Females.
1		2	3	4	5	6	7	8	9	10
6. Total of Commerce	Total	301,569	74,427	375,996	26,695	7,071	36,773	6 ,3 65	238,101	60,991
	Rural	188,556	53,997	242,553	17,511	4,453	20,888	4,250	150,157	45,294
	Urban	113,013	20,430	133,443	9,184	2,618	15,885	2,115	87,944	15,697
6.0, Retail Trade other-	Total	118,581	27,984	146,565	9,428	3,148	13,798	2,914	95,355	21,922
wise unclassified.	Rural	74,713	20,188	94,901	6,173	1,999	7,756	2,058	60,784	16,131
	Urban	43,468	7,796	51,264	3,255	1,149	6,042	856	34,571	5,791
6.1. Retail Trade in Food	· Total	120,115	34,0 65	154,180	9,497	2,151	12,225	2,221	98,393	29,693
stuffs.	Rural	77,253	24,570	101,823	6,634	1,309	7,280	1,411	63,339	21,850
	Urban	42,862	9,495	52,357	2,863	842	4,945	810	35,054	7,843
6.2. Retail Trade in Fuel	Total	10,595	5,069	15,664	1,271	704	1,498	500	7,826	3,865
and Petrol.	Rural	7,665	4,218	11,883	1,138	620	1,230	312	5,297	3,286
	Urban	2,930	851	3,781	133	84	268	188	2,529	579
6.3. Retail Trade in Textil	eTotal	25,774	4,570	30,344	2,710	690	3,402	529	19,662	3,351
and Leather Goods.	Rural	14,576	3,166	17,742	1,510	357	1,740	367	11,326	2,442
	Urban	11,198	1,404	12,602	1,200	333	1,662	162	8,336	909
6.4. Wholesale Trade in	Total	9,385	914	10,299	1,226	175	1,593	51	6,566	688
Food-stuffs.	Rural	4,384	687	5,071	673	133	802	36	2,909	518
	Urban	5,001	227	5,228	553	42	791	15	3,657	170
6.5. Wholesale Trade in	Total	7,611	883	8,494	1,328	87	1,226	85	5,0 57	711
Commodities other than Food-stuffs.	Rural	5,082	667	5,749	993	25	690	40	3,399	602
	Urban	2,529	216	2,745	33 5	62	53 6	45	1,658	109
6.6. Real Estate	Total	3,737	461	4,198	706	95	1,976	42	1,055	324
	Rural	1,147	98	1,245	152	2	772	3	223	93
	Urban	2,590	363	2,953	554	93	1,204	39	832	231
6.7. Insurance	Total	912	35	947	14	13	470	3	428	19
	Rural	484	23	507	4	1	325	3	155	19
	Urban	428	12	440	10	12	145		273	••
6.8. Money-lending, Ban-	Total	4,859	446	5,305	515	8	585	20	3,759	418
king and other Fina- ncial Business.	Rural	3,252	380	3,632	234	7	293	20	2,725	3 53
	Urban	1,607	66	1,673	281	1	292	••	1,034	65

TABLE 62.

THE 1951 CENSUS STATISTICS OF EMPLOYMENT IN COMMERCE AND SERVICES.

Division and Sub-Division			Total.		Employ	ærs.	Emplo	yees.	Independer	nt workers.
Division and Sub-Division	•	Males.	Females.	Total.	Males.	Females.	Males.	Females.	Males.	Females.
1		2	3	4	5	6	7	8	9	10
9. Total of Services not elsewhere specified.	Total	359,958	75,241	435,399	7,771	1,500	243,679	43,227	108,508	30,514
olsownere appendied.	Rural	214,227	55,176	269,403	5,087	1,287	128,434	29,894	80,706	23,995
	Urban	145,731	20,065	165,793	2,684	213	115,245	13,333	27,802	6,519
9.0. Services otherwise unclassified.	Total	194,610	30,041	224,651	3,767	957	159,399	22,719	31,444	6,365
unclassined.	Rural	116,270	25,249	141,519	3,591	881	88,780	18,945	23,899	5,423
	Urban	78,340	4,792	83,132	176	76	70,619	3,774	7,545	942
9.1. Domestic Services	Total	67,037	22,987	90,024	ð	25	58,968	18,704	8,064	4,258
	Rural	36,589	13,388	-19,977	S) 5	25	29,345	9,714	7,239	3,649
	Urban	30,448	9,599	40,047			29,623	8,990	825	609
9.2. Barbers and Beauty-	Total	28,543	5,341	33,884	744	118	3,383	368	24,416	4,855
Shop.	Rural	23,934	4,647	28,581	564	115	2,453	348	20,917	4,184
	Urban	4,609	694	5,303	180	3	930	20	3,499	671
9.3. Laundries and	Total	19,369	10,589	29,958	750	173	1,594	615	17,025	9,801
Laundry Services.	Rural	14,697	8,365	23,062	449	136	1,066	419	13,182	7,810
	Urban	4,672	2,221	6,896	301	37	528	196	3,843	1,991
9.4. Hotels, Restaurants	Total	5,068	1,279	6,347	크고크 ₈₇₂	7	3,100	124	1,096	1,148
and Eating Houses.	Rural	1,029	143	1,172	60	I	457	3 8	512	104
	Urban	4,03'	1,136	5,175	812	6	2,648	86	584	1,044
9.5 Recreation Services	Total	4,702	1,815	ö,517	219	71	1,562	366	2,921	1,378
	Rural	2,801	927	3,728	117	28	763	148	1,921	751
	Urban	1,901	888	2,789	102	4'}	799	218	1,000	627
9.6. Legal and Business	Total	20,240	123	20,363	812	6	13,285	53	6,143	64
Services.	Rural	6,337	87	6,424	64	6	4,218	36	2,055	45
	Urban	13,903	36	13,939	748		9,067	17	4,088	19
9.7. Arts, Letters and	Total	1,355	71	1,426	142	42	309	18	904	11
Journalism.	Rural	351	7	358	7		47		297	7
	Urban	1,004	64	1,068	135	42	262	18	607	4
9.8. Religious, Charitable			2,995	22,029	460	101	2,079	260	16,495	2,634
and Welfare Services.	Rural	12,219	2,363	14,582	230	95	1,305	246	10,684	2,022
	Urban	6,815	632	7,447	230	6	774	14	5,811	612

- 8. Employment in retail trade.—In the Census tables which have been reproduced we find the total number of men and women engaged in retail trade according to Sub-Divisions 6.0, 6.1, 6.2 and 6.3 to be 3,46,753. To this number may be added 2.244 men and women who run eating houses and self-employed workers in Sub-Division 9.4. There are other categories of self-employed men and women who have been accounted for separately, but partly belong to this category of persons engaged in petty trading. We are not tabulating these here separately, but it may be noted that most of the persons returned as independent workers in the Sub-Divisions accounting for wood-cutters and those engaged in collection of forest produce, those engaged in fishing, those employed in some of the food industries, and in beverages (toddy tapping and selling), in tobacco (bidi), even in cotton textile and wearing apparel industries (tailors), in footwear and other leather goods industries, in smithy, in the manufacture of bullock carts or wheels, in brick-making, in furniture making, and in a large number of other hand trades or crafts in Divisions 0 to 5 are their own manufacturers and retailers. Thus, in aggregate petty trading, and specially self-employment in it provides a large and growing volume of employment for small persons and is a great social safety valve.
- 9. Large enterprises in Commerce.—Sub-D'visions 6.4 and 6.5 give the number of wholesalers in food-stuff as 10,299 and in other commodities as 8.494 respectively. These are large and medium capitalist enterprises and access to them is rather restricted. In the West, the wholesalers are financially strong and often in so strong a position as to dictate terms to the manufacturers. In India, with short supplies of most commodities, their position is not strong.

In an advanced economy, retail trade also is highly capitalised. With the growth of income and standard of living and with the increasing variety of goods, the consumers look for a higher standard of servicing from the retailers of all classes. The assortment of goods stocked tends to grow and larger and larger investments for stock-in-trade are required. Even the servicing like those given by tailors, laundrymen, hotel-keepers, etc., tends to get more elaborate and out of the reach of the petty retailer. All this, however, generally leaves the scope for the petty trader very much as before even in the advanced countries on account of the large volume of consumer expenditure.

One conclusion which we draw from this trend of the economy is that while the petty trades which we have considered would not be suitable for educated persons, there is considerable scope for enterprising youngmen to enter the expanding sphere of capitalist retail trade in which they can begin in a modest way, live modestly and plough back the earnings into the business. The career of most of the giant, large and moderate firms and houses in the West began in this way and they grew up with the growth of the economy. Many of them passed on later from trade to manufacture or to finance and banking. Others expanded their business and established large Departmental Stores, Chain Stores and Mail order business. Moreover, cooperative and quasi-government trading provide scope for employment of educated persons in various capacities and also impart training in managerial work.

10. The importance of the self-employing sector and prospects of further employment in Commerce.—In all backward but free economies, there is a large volume of self-employed or independent workers. Most of them are engaged in humble residual occupations. But we have examined elsewhere how this sector is important from economic and social points of view. Although we are again referring to it in this chapter on the tertiary sector, it cuts across the entire economy, embracing agriculture and primary industries, the secondary sector and, most of all, the tertiary sector. Out of the total of 127.1 lakh of the economically active population in 1951, about 81 lakh were self-employed owner and tenant cultivators while a large number of the agricultural labourer class numbering 28.6 lakh also were partly self-employed. Of the 16.16 lakh of persons engaged in all industries and services, 7.57 lakh were

self-employed or independent workers. To a great extent it is a residual class. In an economy of large scale mechanised production it would tend to be replaced largely by wage earners. But in the transitional stage the number of this class would tend to increase for reasons given below. It is believed that the increase in the per capita income of the people as a whole, the growth of urban population and the trend of diversification of the economy would induce an appreciable increase in the volume of self-employment in the non-agricultural sector. The scope can be illustrated by citing some comparative figures. Thus taking only one Division of the Census statistics of non-agricultural occupations, we find that whereas the percentage of the economically active persons in commerce and transport in West Bengal was 9.3 and 8.0, in Bombay 7.2 and 2.2, in Bihar it was only 3.4 and 0.7 respectively. Looking into further details we find, for example, that there was only one fisherman serving 538 families in rural and 180 in urban areas, one tailor serving 55 families in urban and 408 families in rural areas, one road transport operator for 25 families in urban and 513 families in rural areas, one washerman for 84 families in urban and 311 families in rural areas. Similar ratios may be worked out for other specific trades and occupations. It is clear that any progress which is registered by the economy of the country would tend to expand the scope for self-employment by stimulating the demand for services rendered by them to the consumers.

An examination of the transitional stages of a backward economy working its way up brings out an important feature of the growth which has got a useful lesson for us in connection with the subject of this Chapter. In a stagnant and backward economy which has been relatively free for some decades from the Malthusian natural checks on the growth of population but has not grown economically, a stagnant pool of unemployed and under-employed population subsisting on a sub-marginal standard of living is created. The effects of the first step of growth are that this stagnant pool of labour is stirred into job or employment awareness by the example and emulation of those few who get into jobs. But it takes a considerable time before any large section of the people gets employment in the more remunerative industrial, commercial and administrative services. Meanwhile, the slow growth of the economy, of employment and of national income tends to increase consumer expenditure and to create avenues for the petty trader, vendor, eating-house keepers, road-side enterpriser, etc., and provides economically and socially very valuable accommodation for those who enter the labour market as a result of the first step of progress transmitting their jerks, however feeble to the entire economy.

11. The necessity of a positive policy for stimulating self-employment in the nonagricultural sector.—The State has a highly liberal policy for the welfare of the factory workers. Efforts are being intensified to help the agricultural labourers. The small enterprises in fabrication are also receiving the required stimulus and support through various measures of financial help, technical advice and guidance and facilities for marketing. It is urged that the number of the self-employed persons in the other Divisions of the occupational tables and the scope for further expansion in them call for a positive policy of patronising all these occupations not embraced within the scheme of aids of different kinds from the State. Their social values have already been explained. It is recommended that steps may be taken to see those occupations which are not so far covered by the measures of aid or patronage of the State receive due consideration. Even apart from any positive measure, there is quite a lot to be done to free them from many administrative disabilities imposed legally or illegally on them. Details of some of these disabilities have been collected by the Committee which show that much useful work for helping them can be undertaken without any additional expenditure by the State. The impact of the actual administration of the Sales Tax, of the Shops and Establishment Act, of various measures for hygienic control, etc., deserve attention. One great weakness of the small self-employed persons is his extreme individualism and it is expected that the spirit of associative action may be fostered among them. They may be freed from petty

vexations by the administration in other ways. All these measures would be compatible with any measures for the control of the activities in the interest of the society and the consumer, and may even help the small self-employed. For example, a constructive and sympathetic enforcement of the hygienic measures on the small hotels, restaurants and eating-houses is more likely to increase their popularity and business than to hinder them. The road-side vendors and the itinerant tradesmen may be guided into plying their trade with a proper civic sense of not blocking the foot-paths or roads. The green-grocers who start their work transporting their ware in the early hours of the morning may be helped by the provision of a larger number of market places. There are numerous other lines on which self-employment can be stimulated, the details of which may be looked into.

12. Employment in the Administrative Services, Health and Education.—The statistics on these are contained in Division 8 and its 9 Sub-Divisions in the Census tables of 1951.

The tables give the figures of employment in the State, Union and Local Body services as well as for independent workers in health and educational employment. There are reasons for believing that the enumeration has not been accurate. However, we have got more upto date and accurate figures from the annual census of the Directorate of Economics and Statistics from 1952 and from the Employment Market Information Programme from 1958. It may be noted that the figures of employment in the state enterprises of the Union in Bihar like the railways, etc., are excluded both by the census and by ourselves as they have been accounted for separately in the Secondary Sector.

TABLE 68.

THE 1951 CENSUS STATISTICS OF EMPLOYMENT IN HEALTH, EDUCATION AND PUBLIC ADMINISTRATION.

			Total.		Emplo	yors.	Emplo	yces.	Independe	nt workers
		Malon.	Females.	Total.	Males 1	Females.	Males.	Females.	Males.	Females.
1		2	3	4	5	6-67-j	7	8	9	10
	D	VISION 8	TOTAL	OF HEALT	H, EDUCA	TION AN	D PUBLI	C ADMIN	ISTRATIO	и.
Total	••	97,407	15,026	1,12,433	906	의 취취의 23 5	81,722	11,46 6	14,779	8,325
RUBAL		48,957	6,487	55,444	681	109	39,484	4,477	8,792	1,901
Urban		48,450	8,539	56,989	225	126	42,238	6,989	5,987	1,424
			Sub-div	rsion 8.1I	MEDICAL AN	ATHER OF	HEALTH 8	SERVICES.		
Total		20,065	8,732	28,797	764	219	6,609	5,384	12,692	8,129
RUBAL		11,474	4,275	15,749	546	103	3,732	2,416	7,196	1,756
URBAN		8,591	4,457	13,048	218	116	2,877	2,968	5,496	1,373
			Sub-	DIVISION 8.	2-EDUCATI	ONAL SERV	VICES AND	RESEARCE	т.	
Total		25,585	3,752	29,837	111	16	23,907	3,540	1,567	196
RURAL		15,071	1,796	16,867	106	6	13,881	1,645	1,084	145
Urban		10,514	1,956	12,470	5	10	10,026	1,895	483	51
			8	Sub-division	v 8·3—Авму	, NAVY AN	D AIR FO	RCE.		
Total		••	••		••	• •				
RURAL		• •	• •							
Urban						• •				• •

TABLE 63.—concld.

THE 1951 CENSUS STATISTICS OF EMPLOYMENT IN HEALTH, EDUCATION AND PUBLIC ADMINISTRATION—concld.

			Total.		Emplo	oyers.	Emplo	yees.	Independen	t Worker
		Males.	Females.	Total.	Males.	Females.	Males.	Females.	Males.	Females
1	·	2	3	4	5	6	7	8	9	10
		St	B•Division	8.4—Por.i	CE (OTHER	THAN VILL	AGE WATO	HMAN).		
Total		13,803		13,803		••	18,803	• •	••	• •
RUBAL		6,381	••	6,381	••	••	6,381	•=	••	• •
Ur ban		7,422	• •	7,422	••	• 10	7, 42 2	610	400	-
			Sub-Divisio	n 8.5.—Vi	LLAGE OFE	icers, Serv	ANTS AND	WATCHMI	en.	
Total		7,720	• •	7,720	31		7,169	••	520	•
RURAL		6,825		6,825	29	••	6,284	• •	51 2	• •
Urban		895	• •	895	2		885	43-	8	•
		SUB-D	.6.8 noisivi	-EMPLOYE	es of Mu	INICIPALITIE	s and Loc	AL BOARD	3.	
Fotal		3,444	998	4,442	4333		3,444	998	919	•
RURAL		1,278	078	1,588			1,278	310	419	•;
URBAN		2,166	688	2,854		<i></i>	2,166	683	510	•
			Sub-Divi	sion 8.7	Емрьочее	S OF STATE	GOVERNI	MENT.		
rotal		17,548	1,485	19,033			17,548	1,485	•••	
RURAL		5,658	75	5,731			5,656	75		₩3
Urban		11,892	1,410	13,302			11,892	1,410	• •	•
		Sυ	B·Division.	8.8.—Emple	OYEES OF	THE UNION				
rotal		9,145	59	9,204			9,145	59	• •	•
RURAU		2,182	81	2,2.3			2,182	31		• •
TRBAN		6,933	29	166,9		. •	6,903	28		•
		8	UB-DIVISION	8.9Eup	LOYEES OF	non-India	N GOVERN	MENTS.		
Total		97	* •	97			97		••	€n
RUBAL		90		9(1	• •		90			•
Urban		7		ï			7	. •	••	•

^{13.} Employment in the Medical and Health Services and Profession.—In the Census tables Sub-Division 8.1 gives a total of 28,797 persons employed in Medical and Health Services and Profession. It includes the personnel under the Local Bodies, too, and is an omnibus total of registered medical practitioners, unregistered medical practitioners, compounders, nurses, midwives, vaccinators, dentists and other hospital staff, as well as those practising independently. But scavengers and persons in the sanitary services numbering in all 7,107 men and 6,478 women are counted separately in Sub-Division 5.7.

An estimate based on the figures in the Civil Budget, 1958-59 gives the figure of 6,505 (including 3,746 Grade IV employees) and 4,255 (including 2,551 Grade IV employees) in the Medical and Health services respectively of the State Government

during 1958-59. But no definite trend can be established. It can be clearly inferred that the number in these services has been increasing from year to year on account of the growth in the medical and sanitary services, expansion of hospitals and the opening of Development Blocks. The statement in the Chapter on Employment of Educated Persons gives us the figures of the medical graduates passing each year, but we have no separate figure of the increase in the number of private practitioners.

No figures are available separately of unregistered medical practitioners. But the annual additions can be known from the figures of candidates passing out of the Ayurvedic and Unani training institutions. It has been observed that the increase in the income of the lowest income group tends rather to increase the patronage of the unregistered medical practitioners whose services are available at lower costs.

14. EMPLOYMENT IN EDUCATIONAL SERVICES AND PROFESSION.

14.1. The Census figures.—Employment in education and research, given in Sub-Division 8.2 of the Census places the total number in 1951 at 25,585 men and 3,752 women. It evidently includes all categories from the University, State Department of Education, employees of the Local Bodies and of Managing Committees and independent workers (numbering 1,567 men and 196 women). There has been a rapid expansion of employment since 1951. The Civil Budget Estimate, however, gives the number only for those employed by the State which stood at 1,729 including 413 Grade IV employees in 1958-59. Clearly it accounts for only the Departmental officers. More detailed figures on this subject has been given in the Chapter on Employment of Educated Persons.

14.2. Employment in General Administration.—It should be noted that the figures given by the different authorities are not comparable. The Census tables give separate figures for the State Police (Sub-Division 8.4). Village officials and watchmen (Sub-Division 8.5), employees of the Local Bodies (Sub-Division 8.6), employees of the State Government (Sub-Division 8.7), employees of the Union Government (Sub-Division 8.8) and employees of other Governments (Sub-Division 8.9). The Director of Economics and Statistics gives the figures of the employees of the State Government only, though separate figures for the Departments are available. The coverage of the Employment Market Information Programme is wider, but we have not got the figures separately for each Department though the figures for the railways and for the enterprises of governments are given separately.

The figure of the Director of Economics and Statistics for June, 1955 of all the employees of the State Government including Health, Medical, Education and all the Administrative Services was 1,17,466. But this figure has fluctuated according to the mere chance of the number of defaulting offices in submitting the returns. Thus the total was 97,021 in 1953 and 85,712 in 1952.

The Employment Market Information Programme figures are more systematic. Excluding the Governmental enterprises, we get the following figures (which include police, health, medical and educational services) for the year 1958-59:—

Ontonom			Number on-	
Category.		 30th September, 1958.	31st Dec- ember, 1958.	31st March 1959.
State Government	• •	 1,82,675	1,85,561	1,88,288
Local Bodies	••	 84,433	86,471	87,407
Central Government		 24,062	24,563	25,274
Cantonment Boards	••	 374	385	384
Total	••	 2,91,544	2,96,980	3,01,353

These figures give a more correct picture of the expansion in employment which has been taking place.

14.3. Employment in the Police Service.—The figure for the Police stands at 13,803 in 1951 according to the Census Sub-Division 8.4 The Civil Budget Estimate for 1957-58 is 32,560 including 28,573 Grade IV employees, though the total is estimated as 30,748 including 27,091 Grade IV personnel for 1958-59. Evidently the preceding figure for 1957-58 appears to be more correct. These figures bring out the expansion in employment in this service which has been taking place.



CHAPTER XIII

EMPLOYMENT OF EDUCATED PERSONS.

1. The Educated Unempl yment Sub-Committee.—The anxiety and seriousness with which the Committee considered the problem of unemployment among educated persons is shown by the appointment of a strong sub-committee to make separate and special investigation into this subject. The Educated Unemployment Sub-Committee was constituted by the Chairman's order no. III/E2-1025/54L-2502, dated the 13th February 1954, and it addressed itself to its task immediately. The Sub-Committee collected a large volume of data and held a large number of meetings in spite of various changes in the personnel. The draft report of the Sub-Committee was placed before the main Committee in the meeting on the 12th and 13th August, 1956. The report was further elaborated in the subsequent meetings of the Sub-Committee and was finally adopted in the meeting of the main Committee held on the 21st April 1959. The Sub-Committee has presented very specific and elaborate recommendations, which along with most of the text of the report are contained in this chapter. The analysis of the urgency of the problem of unemployment among educated persons has already been dealt with in another chapter dealing with the consequences of unemployment.

2. THE FACTORS AND CAUSES OF UNEMPLOYMENT OF EDUCATED PERSONS IN BIHAR.

2.1. The factors creating the problem of the educated unemployed.—In the preindustrial and feudal society education was meant only for the ruling class in the liberal form and for the civil servants in the utilitarian form. Besides these, there was the system of education of the priestly class. There was no system of general secular education accessible to all who desired it and there was no general desire for education. In its place there was the system of specialised apprenticeship in crafts which was hereditary in India, but more open in the West. The British administration introduced a system of general education in India partly for securing recruits for the subordinate and clerical personnel of the civil services and partly to satisfy the demands of the British Parliament on the East India Company, and on the Crown administration later on, for justifying the civilising mission doctrine of the foreign rule. Both the Company and the Crown had to place before the Parliament regular reports on the moral and material progress of India. It may be noted that the idea of spreading education for fitting the Indian people for self-government was being repeated from the very beginning and the idea of education as a preparation for democracy was applied as a principle of Indian administration about the same time as the spread of education was advocated to make democracy safe in England in the last century. There was, however, one very great difference in the conditions between Great Britain and India. In Great Britain, the steady progress of industry commerce, the expansion of the Empire and overseas migration continuously expanded the avenues for employment and they made a special demand for educated persons for employment. In India, the economy did not grow to the same extent and by the beginning of this century a certain overproduction of educated persons as compared to the limited avenues began to manifest itself. When the national movements in various forms began to manifest themselves in India, the British administrators of this country interpreted it as being due to the frustration of the increasing number of educated persons who could not be provided with administrative jobs. But far-sighted Indian leaders correctly saw that it was economic stagnation due to the British policy to a great extent which was responsible for the poverty of the country and for the lack of avenues for either employment or enterprise. It was for this reason

that the nationalist movement in the country grew up along with the Swadeshi movement of economic nationalism.

- 2.2. Special causes of the unemployment of educated persons in Bihar.—The Sub-Committee has pointed out the special factors creating the problem of unemployment of the educated persons in Bihar as detailed below—
 - (a) Rapid increase in the population of the country and the pressure on land with very little margin of virgin land for reclamation.
 - (b) Steady growth in the number of schools and colleges during the last twenty years and a rapid increase in the number of educated persons.
 - (c) The lack of tradition for and the reluctance of educated persons to take to farming as well as the risks and low returns of farming. This means that in spite of most of the high schools being situated in the rural areas, very few educated youngmen stay on in the villages. This is brought out by the statement compiled by the Rural and Agricultural Unemployment Sub-Committee showing the number of educated unemployed persons in 186 of the sampled villages whose figures were available and are given districtwise.

TABLE 64.

STATEMENT SHOWING THE POSITION OF EDUCATED UNEMPLOYED IN THE SAMPLED VILLAGES OF BIHAR (AGRICULTURAL AND RURAL UNEMPLOYMENT SURVEY OF THIS

COMMITTEE).

District.			Adult	No. of sampled	No. of person	s found unen up t	ployed havin	g education
District.			population (15—60 years) of villages.	villages from where village return received.	Matri- culation.	Inter- mediate.	Bachelor Degree.	Post- graduate Degree.
1	-		2	de 3	4	5	6	7
Patna	• •	••	8,916	क्षित्रे हो हो।	27	7	3	• •
Gaya	••	••	5,526	18	25	3	• •	
Shahabad	••	••	6,964	विद्यापन्त	24	8	3	1
Muzaffarpur	••	••	9,453	15	4	• •	1	••
Darbhanga	••	••	6,952	9	8	. 2	••	••
Saran	••	••	5,123	15	9	1	••	
Champaran	••		17,506	15	16	1	••	••
Bhagalpur	••	• •	2,101	6	19	3	1	••
Saharsa	••	••	6,586	9	10	••	••	••
Purnea	••	••	6,083	12	27	4	1	1
Monghyr	••		8,165	12	178	4	1	••
Santhal Pargan	as		2,906	16	1	••	••	• •
Ranchi	• •		3,810	9	. 7	1	••	••
Hazaribagh	••		760	6	••	•	• •	••
Singhbhum	••	••	2,567	10	• •		••	••
Dhanbad	••		311	2	• •	••	••	••
Palamau	••		662	4	••	••	••	
Total		••	94,391	186	355	34	10	2

The above table clearly brings out the fact that even the matriculates do not like to remain in villages. On the average not even two unemployed matriculates per village have been found living in villages. The number of Intermediates, Graduates and Post-graduates living in the villages who are unemployed is negligible.

- (d) The majority of the bigger factories and mines in this State are owned by persons who are not original inhabitants of Bihar. Most of these have their head offices located outside this State. For higher posts, appointments are made at the head offices to the disadvantages of local talents. It is common knowledge that even for posts requiring general qualifications for which there is no dearth of persons in the State, outsiders are being appointed in large numbers. Again, at the time when the factories, mines, etc., were first started, these establishments had to appoint engineers, managers and experts from outside as local people were not available then, and it is they, who in turn recruited persons for the subordinate posts. Evidently they were not anxious to patronise local people. Then there is the system of giving preference to the sons and relations of the employees. All these factors have the cumulative effect of the local people not being considered in these important avenues of employment. Local people do not get their due share of employment in firms of big contractors and engineers who are given big contracts in this State. These firms of contractors and engineers are mostly from other states and reluctant to recruit local men.
- (e' The Sub-Committee finally observes-

"Before we close, it is necessary to add a line about employment of local people in Central services and undertakings such as Posts and Telegraphs Department, Railways, Collieries, and newly started factories in the public sector. The representation of local people in the higher posts in all these undertakings, except perhaps in the Posts and Telegraphs Department, is very small. It is not that suitable candidates from this State are not available for higher posts but the system works in such a way as to eliminate local people to the maximum. As a contrast, it may be noted that the recruitment in the Posts and Telegraphs Department on local basis has resulted in a very satisfactory representation of Biharis in this Department".

- 3. The Bihar Unemployment Committee of 1935-36.—The subject of unemployment of educated persons was considered by another enquiry committee in this State in 1935-36. The then Government of Bihar and Orissa appointed the Bihar Unemployment Committee consisting of official and non-official members to enquire into the causes of unemployment which had been aggravated by the impact of the slump of the thirties on the already stagnant economy of India and to make recommendation. The terms of reference of this Committee bring out how it was the unemployment among the educated persons which was the major anxiety. The Committee was required—
 - "to examine and report on the nature and extent of unemployment among the educated classes, to investigate the possibilities of diverting more educated youngmen to industry and to make recommendations for reducing the volume of middle class unemployment; in particular to examine:—
 - (a) the extent to which employment can be found in connection with the industries of Bihar and Orissa for the educated youngmen of the province;
 - the causes which operate against the admission of educated youngmen in the industries and the measures necessary to overcome their difficulties in securing employment;

- (c) the technical and other qualifications required for industrial employment and the extent to which facilities are available for acquiring these qualifications;
- (d) whether posts in the industrial system of the province for which men from this province are fitted are in fact being filled to any considerable extent by men from other provinces, and if so, for what reasons:
- (e) the nature and scope of the training provided in the Bihar College of Engineering and the technical and industrial institutes of the province, the extent to which these institutions qualify their students for industrial employment and whether modifications are desirable: and to make recommendations".
- 4. The methods of enquiry adopted by this Sub-Committee.—The Sub-Committee in its very first meeting decided that those who have passed at least the Secondary School Certificate or the Matriculation or an equivalent examination should be treated as educated for the purposes of its study. It was considered that the conditions have changed very much since 1935 when the first Unemployment Committee was appointed and which considered all those who had attained the middle standard as educated.

There is a great dearth of statistics of educated unemployed persons. The registration of job seekers with Employment Exchanges is still voluntary and the exchanges are at present confined to big towns and industrial centres. The Sub-Committee has tried to find out the extent of unemployment in various ways.

It was thought that information about current unemployment among the educated persons could be called for by putting in an advertisement in all the papers of Bihar requesting the unemployed to send the required information. But subsequently it was realised that a publication of advertisement in the newspapers was likely to raise false hopes to the already disheartened unemployed persons. Also there was the possibility of persons already employed reporting themselves as unemployed in hope of getting some help from Government and thus vitiating the purpose of the enquiry. On all these grounds, it was decided to drop this method of collecting information.

Heads of all the educational institutions in the State were requested to give information about their alumni who had failed to secure employment. There was practically no response to this request. This was due to the fact that there is no system in existence at present to maintain this kind of information. The institutions lose touch with their alumni as soon as they pass out.

A survey was designed to cover all the factories and mines employing 500 or more workers and an attempt was made to collect information on the number of existing posts, estimated vacancies in the next two years and five years, qualifications, emoluments, apprenticeship training and employment of people of this State, etc. It was a postal survey and the response was very poor. Out of 72 factories and 100 mines covered by the survey, returns were received from 16 (22 per cent) factories and 35(35 p.r cent) mines and covered 22.7 per cent and 41.9 per cent of the workers employed in factories and in mines respectively. Practically no information was received about the vacancies likely to occur in the near future.

The Sub-Committee had, therefore, to fall back upon diverse sources of information as shown by the data presented in the succeeding sections.

5. THE URBAN UNEMPLOYMENT SURVEY OF 1954 IN BIHAR.

5.1. The data on educated unemployment collected by the Urban Unemployment Survey, 1954.—A rapid Urban Unemployment Survey was conducted in this State in 39 Lab.—57

1954 on behalf of the Unemployment Committee and very valuable data on the subject of unemployment among educated persons were obtained. The general results of this survey in sample towns have already been summarised in Chapter VI. The following towns were covered by the survey:—

Class I town (population 1 lakh & above) ... Patna, Ranchi and Bhagalpur.

Class II town (population 50,000 to 1 lakh).. Muzaffarpur, Chapra, and Arrah.

Class III town (population between 20,000 to 50,000).

Purnca, Motihari, Madhubani, Jamalpur, Dooghar, Hazaribagh, Purulia. Dhanbad & Giridih.

-- 4. . . .

5.2. The incidence of unemployment on educated families and persons.—This survey indicated that out of 4,716 families surveyed in all the 15 towns, the heads of 999 families, i.e., 21.2 per cent were in the educated group. Out of families affected by unemployment 21.7 were in the educated group. The distribution of families affected by unemployment according to educational qualifications is given in the following table:—

TABLE 65.

DISTRIBUTION OF FAMILIES AFFECTED BY UNEMPLOYMENT
BY EDUCATIONAL STANDARDS.

Educational qualification	ANS	Families uner	affected by irloyment.
Educational qualification head of family.	tion of No. of families.	Number.	Percentage.
1	2	3	4
Matriculation		487 18	5 37.98
Intermediate		112 48	8 42.85
Graduate		126 4:	35.71
Post-graduate	विकास	32	18.75
Teaching	44. 44.44.4	22 5	31.81
Engineering	•••	19	7 36.84
Agriculture and Veter	inary	5	20.00
Commerce	ara	10	33.30
Legal	ero 1	131 44	33.58
Medical	er.	42 8	19.04
Others	0:0	13	53.84
Total	:	999 36	36.13

The survey further indicated that while 17 p r cent of the unemployed and 4.35 per cont of the partially employed were matriculates, the percentage of persons with higher qualifications among the partially employed was less than one for each category. But of those wholly unemployed, 6.79 per cent were Intermediates, 5.01 p r cent were Graduates and 0.75 p r cent were Post-Graduates. Persons holding degree in Commerce. Law etc., accounted for about 2 p r cent of the unemployed.

One more significant feature has been brought out by this survey. It is this that 2 families with intermediate heads, and some others with Engineering. Commerce and

legal qualifications are in the lowest income group earning Rs. 50 or less per family per month. From this one thing is clear that unless the economy as a whole expands and purchasing power and productivity increases, mere imparting of technical and vocational education would not by itself solve the problem of unemployment.

6. The proportion of youngmen going up for higher education and entering the labour market.—Young persons after passing the matriculation or equivalent examination either go i for higher studies or come to the employment market. This is true of all successive examinations. An analysis of the number of applicants for admission into various colleges in the State and those who could actually secure admission in the years 1950—54 gives the following results.—

TABLE 86.
AN ANALYSIS OF APPLICATIONS FOR ADMISSION IN DIFFERENT CLASSES IN COLLEGES (1950-51 TO 1953-54).

(1950	ı . 51.	1951	l·52 .	1952	-53.	1953	-54.
Courses.	,	Applied.	Admitted.	Applied.	Admitted.	Applied	Admitted.	Applied.	Admitted.
1		2	;	4	1912), 5	6	7	8	9
I. I.A I.Sc T.Com.	}		7.484	13,771	7,550	15,266	8,084	17,182	10,220
2. B.A B.Sc. B.Com.	••]	4,500	2,821	4,831	3,056	5,070	3,066	5,517	3 ,63 0
3. M.A. M.Se. M.Com.	··)	1,397	639	1,589	754	1,993	1,144	2,112	1,093
4. Higher studies	٠.	• •		व्य <u>ा</u> वं		16	2	10	ß
5. Medical		725	161	743	10s	1,019	172	1,009	159
6. Ayervedie		157	108	141	87	153	87	175	119
7. Engineering		1,477	285	3,497	326	2,750	382	2,710	400
8. Law		1,082	1,061	994	889	1,045	926	1,451	1,119
9. Teachers' Train	ing	613	147	489	145	924	212	1,420	273
Total		23,320	12,706	26,055	12,975	28,236	14,075	31,586	17,019

The above table roughly shows the number of persons desirous of going in for higher education. The figure is very rough and no accurate estimate can be made because a number of students pply to more than one institution for admission. If the figure of students applying for admission could be accurately determined, then we could know the number of students who enter the employment market. To the number determined in this way has to be added the number of those who passed the final examinations in different facilities. On account of the uncertainty pointed out, the estimate given may be only approximate.

There has been an increasing number of passes each year at the different examinations. The number of passes at different examinations separately from 1952-53 to 1958-59 is given in the statements which follow—

TABLE 67.

STATEMENT SHOWING THE NUMBER OF STUDENTS APPEARING IN AND PASSING OUT VARIOUS EXAMINATIONS IN THE STATE FROM 1952-53 ONWARD.

		MATRI	MATRICULATION.	ĺ					INI	Intermediate.	E.					
	1					Arts.				Science.	160.			Con	Commerce.	
Your.	Appeared.	ared.	Раззес.	9.	Appeared.	ared.	Passcd.	d.	Appeared.	ared.	Passed.	d.	Appe	Appeared.	Passed	ď.
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	lirls.	Boys.	Girls.	Boys.	Girla.
1	67	en en	4	5	9	7	&	6	10	11	12	13	14	15	16	17
1952.53.																
(A.&S. both) 48,958	48,958	1,911	21,093	1,120	5,691	£9 1	3,500	308	2.365	101	969	5.4 10	2,584	:	1,011	:
1953-54.																
Annual Supplementary	43,971 15,369	1,885	22,940 5,960	1,265 285	1,278	376	3,007	263	1,962	5.2	828 187	100	2,099 682	::	903 261	4 M
1954-65,						महार बन्द्रा										
Annual Supplementary	37,028 12,806	1,879	21,976 5,181	1,351	9,685 3,056	19 50 18 50	3,802 973	297 17	2,507	23	1,358	121	2,544	::	918 318	1:
1955-56,						T										
Annual Supplementary	48,846 10,761	2,358 486	26,902 4,014	1,619	11,334 3,205	852 208	3,523	548 90	2,759 1,006	73	872 280	å re	2,236	::	646 152	: -
1956-57.																
Annual Supplementary	58,005 12,148	2,851 566	34,481	$\frac{2.160}{323}$	12,357 2,989	1,142	6,559 862	649 151	$\frac{4,361}{1,382}$	85 56 56	2,124	ನೆ ನ	2,093 818	::	889 286	.:
1957-58,																
Annual Supplemontary	63,712 13,618	3,436	32,027 4,495	2,270 408	15,148	1,337 352	5,650 937	892 132	5,883	00 4	2,569 509	346	2,252 815	::	849 319	
1958-59.*																
Annual Supplementary	75,488 12,774	4,303 855	41,156 4,469	2,849 416	$\frac{19,786}{3,501}$	1,685 389	6,836 1,026	990 167	7,475	175 53	2,642	 	3,855 848	::	033 176	::
														ļ	1	

*Figures for 1958-59 are provisional and as such are subject to changes.

A—Annual

S—Supplementary.

TABLE 67-contd.

Year,		Arts.	.8.			Science.	ń			Commerce.	erce.			Medical.	al.	
	Appe	Appeared.	Passad.	, 9d.	Appeared		Passed.		Appeared.	red.	Passed.	sed.	Appeared.	red.	Pessed	نہ
	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls.	Boys.	Girls,	Воуз.	Cirls.	Boys.	Girla.
1	18	13	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1952-53. H	693	32	386	28	83	က	62	m	;	:	:	:	287	c	207	٢
(A.A.S. Botn)	3.646	179	1,070	81	1 38	24	508	G/I	1,172	;	450	:	322	11	007 700	æ
1953.54.	280	25	241	4.2	73	႕	55	4	:	:	:	:	;	:	:	•
Annual P Supplementary	3,158 P 1,104	179 49	1,186	105 18	445 121	 :	182 74	: :	1,105 307	::	717 897	::	185 131	l- +	103 24	321 C/I
1954-55. H	816	27	559	37	134	A.	93	Ť		:	:	:	:	:	;	:
Annual P Supplementary	3,679 P 1,412	186 74	966 425	105 35	468 178	र्ग कि ज्यान	93	£.	. SS6 130	: :	404	::	159 87	22	101 53	oc i-
1955-56.	886	61	740	49	187	नापर इस्त्रे	121	-		<u>.</u> :	:	:	:	:	:	:
Annual P Supplementary P	4,156 P 1,261	71	867 140	118	353 162	==	116 76	∞ - -	1.166 381	::	3 35 80	::	188 988 988	<u> 16</u>	108 38	10
1956-57.	1,259	56	854	48	230	7	140	4	:	:	4	:	:	:	:	•
Annual P Supplementary P	3,997 P 1,413	260 89	1,682 423	142 43	591 201	13	318 87	œ	1,318 471	::	517 249	::	183	11	316	7.7
1957-58. H	1,442	116	108	8	201	7	137	9	ã	•	en en	:	:	:	:	:
Annual P Supplementary	5,924 P 1,628	463 175	1,945 458	207 76	704 233	9 8	328 106	97 es	1,223 453	~ ~	490 165	::	156 85	11	35 65	4.0
1958-59.* H	1,653	136	947	107	219	3	140	ţ-	75	;	10	:	:	:	:	:
Annual P Supplementary	9,050 P 1.746	686 199	2,386 326	336 60	999 278	21 6	\$62 97	13 3	1,164 359	::	475	::	161	18 8	109	្អាក -

TABLE 67-contd.

		Electi	Electrical Enginooring.	coring.		Me	Mechanical Engineering.	gineering.			Civil Engineoring.	neoring.	
Year.		Appeared.	d.	Passed.	d.	Appeared.	ared.	Passed.	d.	Appeared.	ed.	Passed	gd.
		Boys.	Girls.	Boys.	Girls.	Воув.	Cirls.	Воуя.	Girls.	Boys.	Girls.	Boys.	Girls.
1		34	36	36	37	38	39	40	41	42	43	4.1	45
1952-53.							The state of the s		The state of the s				
A.&S. Both	:	22	:	55	:	:	:	:	:	67	:	58	
1953-54.													
Annual	:	23	:	क्ष	:	316	:	19	:	71	:	99	
Supplementary	:	3	:	9	:	*©	Sign	ιΩ	:	i3	:	4	
1954-55.					in the			-					
Annual	:	31	:	36	3 7 7	*6		SI S	:	91	:	61	
Supplementary	:	¥D.	:	4	아크' 크 키			30	:	15	:	1.4	
1955-56.					प्रते प्रते								
Annual	:	Te.	:	65	1:	36	r.	333	:	100	:	98	
Supplementary	:	21	:	F	:	က	:	¢1	:	03	:	14	
1956-57.													
Annual	:	36	:	35	:	36	:	हैं। हो	:	115	:	ŝ	
Supplementary	:	m	:	es.	:	က	:	31	:	3.	:	17	
1957-58.													
Annual	τ 	2.5	•	χ, Υ	:	<u>e</u> 1	:	?!	:	145	:	68	
Supplementary	:	x	:	x	:	÷¢	:	m	:	Ŗ	:	<u>x</u>	
1958-59.* Annual	:	ĵ°.	:	ž‡	:	Ç1.	:		:	117	:	100 100 100 100 100 100 100 100 100 100	
1		Ş		-		91		1.4		10/01		(0)6	_

*Figures for 1958-59 are provisional and as such are subject to changes. (a) Eveludes figures of Patna University as they are not available.

TABLE 67—concld.

Popular Popu											MASTE	ERS DE	MASTERS DEGREE.						MI.	MINING DIFLOMA.	TTT TO ST	Α.
Appenred Appenred Passed Appenred App	;			1	S.		S	cieneo	-			Comi	nerce.		Medica	land	Survey	i				! !
1 46 47 48 49 50 51 52 53 54 56 56 57 58 59 60 61 62 63 64 1 1 46 47 48 49 50 51 52 53 54 56 56 57 58 59 60 61 62 63 64 1 1 46 47 48 49 50 51 52 53 54 56 56 57 58 59 60 61 62 63 64 1 1 115 4 111 4 16 15	1 68	£	App	eared.	1	od.	Appe	ared.	Passed	ندا	Appea	red.	Passed	_	Аррев	red.	Passe	d.	Appea	ared.	Passe	'n.
11 479 34 394 32 73 2 48 1 98 72			Boys.	Girls.	Boys.	Girls.		Girls.	Boys. G		30ys. G	irls. E	30ys. G		30ys. G	irls. B	toys. G		oys. G	irls. I	1	Girls.
11			46	47	48	49	50	51	52	53	54	55	56	57	58	59	09	61	62	63	64	8
$\begin{array}{cccccccccccccccccccccccccccccccccccc$)52.53.																					
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Part I	:			394	32	73	কা	48		98	:	13	:	:	:	:	:	한 구	:	0+	:
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Part II	:	115	4	111	4	16	:	15	•		6	:	:	:	:	:	:	:	:	:	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$)53-54	:	678	38	530	34	148	्वा,	83		16		83	:	*	:	ભા	÷	51	:	51	•
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	54.55	:		55		39	173	6.	.97	1	83		2	:	ಬ	:	ಣ	:	41	:	41	•
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	27. 27.			ç	000	69	106	7	70101		3.5		8		1~ 	:	¢ì	:	48	:	46	•
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		•		Ā	680	70	107						D Comment	:	10	:	ဗ	:.	:	:	:	•
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	## 0%		600	9	i	3	5	4	300	4	3	>	0		£ 38	4	12	-	31	:	₹	•
$\begin{array}{cccccccccccccccccccccccccccccccccccc$			5,5	o T	50	÷	*	r.	001	n	76	:	•	:	47	:	61 61	:	:	:	:	•
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	9 11 11		100	3	900	•	000	3	906	•	901		900		3	*	တ	Φì			•	
1,724 102 1,320 88 403 10 250 10 125 112 $\begin{cases} 10 & 2 \\ 24 & 1 \end{cases}$			1,231	c.	433 433	ž	S. S. S.	9	202	r.	257	:	901	:	- - - -	c)	18	¢1	*	:	‡	•
1 16 1				601	000	•	607	Ş	9	91	26		910		or j	ςì	က	:	- د		-	
			1,124	101	1,020	Š	e e	9	90	2	621	:	7	:	- 5 4		15	-		:	-	•

*Figures for 1958-59 are provisional and as such are subject to changes.

7. Projection of the proportion of the educated persons to the total population in the working age-group.—The State Director of Economics and Statistics supplied the following statement of the estimate of the educated population as against the total population of the working age from year to year up to 1961. It shows that if the modernisation of the economy proceeds at a rapid pace and the increasing demand for educated persons for operating a technological economy is taken into account, the ultimate picture need not be pessimistic. But the phenomenon does impose a severe strain on the society, on the State and on the persons affected during the transitional stage.

TABLE 68.

AN ESTIMATE OF EDUCATED PERSONS AMONG THE WORKING AGE-GROUP POPULATION.

		Males.			Females.		
Year.	Educated (Matric and above).	Illiterate (Below Matric).	Total.	Educated (Matric and above).	Illiterate (Below Matric).	Total.	Estimated working population.*
1	 2 .	3	4	5	6	7	8
1951	 254,537	10,506,373	10,760,910	25,249	10,573,329	10,598,578	21,359,488
1952	 285,942	10,593,338	10,879,280	26,057	10,689,105	10,715,162	21,594,442
1953	 307,036	10,691,916	10,998,952	27,177	10,805,852	10,833,029	21,831,981
1954	 335,942	10,783,999	11,119,941	28,720	10,923,472	10,952,192	22,072,133
1955	 363,033	10,879,227	11,242,260	30,340	11,042,327	11,072,667	22,314,927
1956	 393,949	10,971,976	11,365,925	32,262	11,162,204	11,194,466	22,560,391
1957	 433,094	11,057,856	11,490,950	31,647	11,282,958	11,317,605	22,808,555
1958†	 469,038	11,148,312	11,617,350	-	11,404,576	11,442,099	23,059,449
1959	 509,704	11,235,437	11,745,141	40,776	11,527,186	11,567,962	23,313,103
1960†	 553,895	11,320,443	11,874,338	44,312	11,650,897	11,695,209	23,569,547
1961†	 601,919	11,403,036	12,001,955	48,153	11,775,704	11,823,857	23,828,812

8. Educated persons on the registers of the Employment Exchanges.—The Employment Exchange Organisation was set up in this country only in 1944 and registration with the Exchanges is still not compulsory. The registration with the Employment Exchanges is growing both due to the popularity of the exchanges and to the influx of persons in the employment market. Classified numbers of persons on the live registers of the Employment Exchanges are available for the years 1956, 1957, 1958 and 1959 on a quarterly basis. The available information has been summarised and tabulated in the statement which follows. One of the unexpected features of the figures on the live registers of the Exchanges is that unemployment among the persons with technical qualification has also begun to manifest itself.

^{*}N. B.—The percentage of persons above 60 years of age is 7.2 only and it can be safely assumed that number of educated persons below 15 years of age is negligible.

[†]Estimated figures have been given assuming that the ratio of educated females to all educated persons which was 1:13.5 in 1957 would also be maintained in future years.

TABLE 69.

STATEMENT SHOWING THE NUMBER OF EDUCATED PERSONS ON THE LIVE REGISTE: AT THE END OF EACH QUARTER AND PLACINGS DURING THE DIFFERENT QUARTERS OF 1956—1959.

			d Masrie		d I. A.	Grad	uates with o	ne or more	e degrees.		
			l. A.		e courso.		ngineering.	Me	dical.	- (Others.
Quarter ending	·	Placing during the quarter.	Total no. on the live register at the end of the quarter.	Placing during the quarter.	Total no. on the live register at the end of the quarter.	Placing during the quarter.	Total no. on the live rogister at the end of the quarter.	Placing during the quarter.	Total no. on the live register at the end of the quarter.	during the	Total no. on the live register at the end of the quarter.
1		2	3	4	Б	6	7	8	9	10	1
31-3-1956 .		707	8,934	100	1,210	5	19		9	109	1,24.
30- 6-1956		515	6,638	73	1,553	4	25	••	11	67	1,221
30-9-1956		380	9,074	54	1,467	13	18	• •	10	62	1,419
31-12-1956		329	7,524	56	1,336	1	8	2	14	. 80	1,188
31-3-1957		226	6,405	55	950		7	1	9	69	1,078
30-6-1957		305	5,975	58	938		13	• •	9	83	1,002
30-9-1957		509	8,331	56	1,183		7	1	10	61	1,103
31-12-1957		442	9,937	71	1,281	1	10	• •	7	55	1,307
31-3-1958		402	3,216	61	1,359		5	1	8	62	1,363
30-6-1958		329	7,766	64	1,398		6	• •	12	84	908
30-9-19 58		390	9,612	47	1,614	2	60	7	8	76	1,300
31-12-1958		311	8,516	68	1,346	d this	8	• •	9	80	1,310
31-3-1959		357	9,492	85	1,544		5	3	7	83	1,366
30-6-1959		375	8,930	60	1,438		10	2	4	121	1,442
30-9-1959		507	11,255	97	2,066	मेंचे नीमन	15	• •	7	92	1,451
31-12-1959		294	11,679	48	1,906	٠	12		• •	43	1,591

9. Data on the placement of educated persons in the government services.—So far we have tried to have an idea of the volume of educated persons coming to the employment market. To find out how these educated persons have been faring in the employment market, two sets of figures were studied:—(i) vacancies in different departments of government and applications received for these vacancies and (ii) vacancies advertised by the Bihar Public Service Commission and applications filed for these vacancies. The statement given below presents the details about non-gazetted posts for 1951—53:—

TABLE 70.

STATEMENT SHOWING THE NUMBER OF NON-GAZETTED VACANCIES WITH REQUIRED QUALIFICATION AND APPLICATIONS RECEIVED FOR THE YEARS 1951—53

Qualification	ı required.		,	Vacancies	5.		f applica eccived.	tions		no. of	
			1951.	1952.	1953.	1951.	1952.	1953.	1951.	1952.	1953
1			2	3	4	5	6	7	8	9	10
Matriculation	• •	•••	81	77	352	2,185	7,175	8,769	26.9	93.2	24.9
Intermediate	٠.		97	125	39	4,046	7,804	2.593	41.7	62.4	66.5
Graduate			55	16	47	1,582	1,344	818	28.8	84.0	17.4
Technical			22	23	21	229	372	186	10.4	16.2	8.9

All the Departments of Government did not furnish the required information and, therefore, all the applicants are not included in the above table. There were also a number of applications from the candidates having higher qualifications than the required ones. If we eliminate such applications, the number of applications per post was as follows:—

Matriculation	 	29.0
Intermediate	 	32.2
Graduate	 	27.5
Technical	 	11.7

10. Placements through the Public Service Commission.—The Sub-Committee has compiled the following figures and information on the subject of appointments through the Public Service Commission:—

	Perioc	₹.]	Post advertised.	Application received.	Average no. of application per post.
Annual average for	1937-40	• .			104	2,475	23,79
Actual for	1940-41				146	2,231	15.28
,,	1941-42				198	2,424	12.24
,,	1942-43			7-2-	174	2,090	12.01
**	1943-44			Pare!	200	2,379	11.89
,,	1944.45		19.5		335	3,134	9.35
>1	1945-46		VII (93		563	3,566	6.33
19	1946-47		1 1		875	5,017	5.73
,,	1947-48	• •	85		775	6,426	8.29
,,	1948-49		780		597	6,333	10.61
Actual for Bihar on			199	9900	324	3,946	12.18
Actual from 1st Ap				N (31.)	329	3.293	10.00
Actual for 1951				VI SI 16 46	413	3,498	8.46
Actual for 1st July	1951 to 3			Ed his	521	5,003	9.60

It may be mentioned that the figures from 1937 to 1948-49 include figures for states other than Bihar as the Public Service Commission was previously functioning jointly for two or three states including Bihar.

The following table gives the distribution of the candidates for vacancies during 1951-53:—

TABLE 71.

STATEMENT SHOWING THE NUMBER OF VACANCIES ADVERTISED BY THE BIHAR PUBLIC SERVICE COMMISSION WITH REQUIRED QUALIFICATIONS AND APPLICATIONS RECEIVED.

	Qualifie	ation.			No. of vacancy.	No. of applicants.	Average no. of applicants per vacancy.
v 1994 – a popi, m ortina program, maria della della maria della della maria d]	l		ing and a second region. For the second	· ·	3	4
1. (a) Graduate in-	irma						
Arts			3 +	• -	9	A_{41}	19.83
Science	••	• •		1 •	1	25	23.00
Commerce	• •	••	• •	• •	1	68	66.00
			Total		11	537	48.82

Qualit	fication,				No. of varancy.	No. of applicants.	Average no.of applicants per vacancy.
Application of the second seco	1	n elen yiğin azan reliğindi ileneri Sanın elen elen elen elen elen elen elen e	gayan giri i gigandi aki aki iyigan isanii Kasayanan girah caya isanii girah casayan cirib cay	in an ang salah sa	2	3	4
. (b) Graduate in-							
Agriculture			• •		4	55	13.75
Medical	••		.:		99	749	7.56
Engineering			• •		80	731	9,13
Veterinary			• •		12	81	6.75
			Total		195	1,616	8.29
2. (a) Post-Graduate	in			. e religio per escare			
Arts					89	967	10.86
Science		٠.			43	395	9.18
Commerce		. •	••	FEETS)	3	30	10.00
			Total		135	1,392	10.31
. (b) Post-Graduate	in					The second secon	apagalandadir. Agagi ka ususa ar Musukurishin iyakes V vik 6 Mali lin ishidadi inu si
Agriculture			(6)		6	58	9.66
Medical			[••	• •
Engineering						••	
Veterinary			. 6		Ŋ	• •	
			Total		6	58	9,66
Law			E ^(r) i	न्यम्ब नपन	1	31	31.00
Foreign Degree .							
Veterinary					1	7	7.00
Engineering			• •		i	1	1.00
			Total	g Johannette.	2	8	4.00
. Fine Arts				, de japan en prophension la	2	10	5.00
			Total		352	3,652	10.37

There were 521 vacancies during 1951 -53 for which 5,903 applications were received, but details could be available for 352 posts only.

From the above, it appears that commerce graduates have the least chances for employment as compared to others. The position of law graduates was equally bad as for 1 post 31 applications were received. The position in other groups is more or less similar, except for posts requiring foreign degrees and those concerning Fine Arts.

It is also worth noting that 71 per cent of the posts were of a technical nature and more than 50 per cent of the applications for all posts were of persons below 25 years of age and may be considered to be just entering the employment market.

11. Employmen' in the Developmen' Schemes. All the foregoing figures relate to the public services. No estimate is available of the employment opportunities in the private sector. The report on the achievements of the State in the First Five-Year Plan gives the target in different units without stating the employment potentialities for the different targets. Similar is the case with regard to the figures relating to the progress of the Second Five-Year Plan. Employment figures are, however, given for some of the schemes, but a total of these employment figures may give a very exaggerated picture. This is because the schemes do not start at the same time and run concurrently. It is possible that the same set of persons or at least a certain percentage of them would be employed in different schemes. This is more likely to be so in case the same contractors handle the different schemes. A table showing the employment potentials of the constructional and continuing phases, as drawn up in the Bihar Second Five-Year Plan originally is given below. It includes the figures for the educated as well as the uneducated personnel given separately for different categories of administrative, technical, skilled and unskilled persons. It may, however, be noted that the constructional phase as a whole is not terminable and even goes on expanding in a growing economy besides creating recurring employment on maintenance and renewal,

TABLE 72.

MANPOWER REQUIRED IN THASECOND PLAN: CONSTRUCTION PHASE.

		1950	3 -57.	195	7-58.	195	8.59.	1959	-60.	196	0-61.
Category.		Number, M	lan-month.	Number. M	Ian-mouth.	Number.	Man-nonth.	Number, A	Iai •mo. sh.	Numi er.	Mer -month
1	سنڌ تسمير س	2	3	4	5	6	7	8	9	10	11
					in a						
Administrative		2,510	29,365	3,038	£5,292	3,681	42,255	4,000	45,522	4,119	5 0,5 84
Tuch rical		5,582	65, 8 9 6	8,137	91,231	10,92	5 1,27,217	13,2.9	1, 4,752	16,003	86,048
Skilled		32,454	3,11,633	40,136	3,78,528	37,65	3,63,273	35,631	3,33,366	38,538	3,35,762
Uaskilled		5,24,775	28,16,730	3,84,327	35,60,347	6,26,013	45,55,577	5,74,114	27,08,741	3,19,876	35,19,270
TOTAL	,.	5,65,331	32,23,621	4,35,663	40,66,398	6,78,281	50,93,327	6,27,0 ;4	3 ,12,581	3,78,841	40,11,614

TABLE 73MANPOWER REQUIRED IN THE SECOND PLAN: CONTINUING PHASE.

a		195	6 -5 7.	19	957-58.	1953	-5 9.	1959-	30.	1960-6	ī.
Category.]	Number. M	Ian-month.	Number. M	Ian-month-	Number. Ma	in-month.	Number, M	a -month.	Number. M	la 1-month
1		2	3	4	5	6	7	8	9	10	11
Administrative		3,480	41,196	4,196	50,375	4,852	58,215	5,776	68,123	6,087	73,015
Technical		5,575	65,939	8,615	1,03,048	12,133	1,45,736	15,990	1,32,172	21,275	2,55,600
Skilled		5,505	62,555	7,885	91,482	9,663	1,15,640	10,845	1,29,988	12,193	1,44,858
Unskilled	••	14,000	1,58,982	20,165	2,41,320	21,817	2,62,978	23, 059	2,75,796	26,025	3,17,040
TOTAL		285 .	3,2 5,0 52	40, 61	4, 9,225	4,515	5, 2,569	55,670	6,06.079	65,580	7,90,543

12. Employment in the State Services according to the State Directorate of Economics and Statistics.—The State Directorate of Economics and Statistics is conducting a census of government employees at the instance of Government of India for each year since 1952. The census gives the position as on the 1st June each year. This is a postal survey and it is noticed that each year some departments of government default. This accounts for all the downward variation in a succeeding year.

Year.			Gazetted.	Non-Gazetted.	Total.
1952	 		2,889	82,823	85,712
1953	 		2,666	94,355	97,021
1954	 		2,317	94,818	97,135
1955	 		2,842	1.14.624	1,17,466
1956	 	••	3,666	1,27,936	1,31,602

The estimated figures (excluding plan schemes) for the succeeding years are given below:—

Year.	Gazetted (Adminis- trative).	Gazetted (Technical).	Non-Gazetted technical.	Non- Gazetted General-	Grade IV.	Total.
1	2	3	4	5	6	7
1956-57 197-58 1958-59	1,9 2 1,929 1,311	1,518 1,533 1,348	10,158 6,421 6,437	17,477 18,873 19,889	57,373 50,478 50,019	88,468 79,256 79,594

13. Employment in the public sector according to the returns of the Employment Murket Information Programme.—The figures of the Employment Market Information Programme, which was launched in the year 1958, are more comprehensive as t'ey include the figures of employment in the services of the Bihar State and of the Central Government. They also include the figures of the Local Bodies within the State. Besides, they have covered the public sector of industries, transportation, etc., in addition to the administrative services. The ables which follow give the results of the survey during the last two quarters of the calendar year 1958 and for the first quarter of 1959.

STATEMENT SHOWING CHANGES IN LEVELS OF EMPLOYMENT IN THE PUBLIC SECTOR IN BIHAR STATE DURING THE QUARTER JULY—SEPTEMBER, 1958.

Section of the Public	No. of roporting units	No. of reporting units from whom returns collected.	of centage of response.	Total employees on 30th June, 1958.			Total employees on 30th September, 1958.			Increase(+) Per- -decrease(-) centage	
Sector.	known to exist.			Male.	Female	. Total.	Male.	Female.	Total.	during the of	of rise or fall.
1	2	3	4	5	6	7	8	9	10	11	12
State Government	1,748	1,747	100	1,68,876	7,209	1,76,085	1,75,179	7,496	1,82,675	+6,590	3.7
State Quasi	109	109	100	16,678	329	17,007	16,873	351	17,224	+217	1.3
Local Bodies (oth		349	100	74,346	9,282	83,628	75,140	9,293	84,433	+805	0.9
than Cantt. Boards) Contral Government other than Rail-		145	89.3	23,476	376	23,852	23,681	3 81	24,062	+ 210	0.9
ways. Railways	57	57	100	1,06,048	3,611	1,09,659	1,06,614	3,443	1,10,057	+ 398	0.4
Central Quasi	95	92	96.8	47,680	6,528	54,208	50,846	6,664	57, 510	+3,302	6.1
Cantt. Boards	5	5	100	282	58	340	317	57	374	+ 34	10,0
Total excluding	2,452	2,447	99.8	3,31,338	23,782	3,55,120	3,42,036	24,242	3,66,27	+ 11,158	8.1
Railways. Total including Rail- ways.	2,509	2,504	99.8	1,37,386	27,393	4,64,779	4,48,650	27,685	4,76,335	+11,556	2.5

TABLE STATEMENT SHOWING CHANGES IN LEVELS OF EMPLOYMENT IN THE PUBLIC

		Number of reporting establishments.		•	Total nu	Soptember		
Section of the Public S	ector.		Reported.	Percent- age of		g to returns eived,	of employees	/15 t
		Addressed.		response.	Male.	Female.	with the defaulting establishments.	Total.
	غرب <u>ارسد ارب</u> ده کار دید.	2	3	4	5	6	7	8
State Government		1,768	1,766	99.8	1,74,116	7,084	155	1,81,35
State Quasi		125	125	100	16,900	404	• •	17,30
Local Bodies (other Cantt. Boards).	than	349	349	100	76,768	9.202	••	85,97
Central Government (than Railways).	other	152	151	99.3	23,666	3 78	10	24,05
Railways		61	61	100	1,10,208	3,400		1,13,60
Central Quasi	••	103	100	97.1	50,824	6,563	1,486	58,873
Cantt. Boards		õ	5	100	317	57	• •	37
Total (excluding Railwa	ys)	2,502	2,496	99.8	3,42,591	23,688	1,651	3,67,93
Total (including Railway	ys)	2,563	2,557	99.8	4,52,799	27,088	1,651	4,91,539

करप्रधेव तपने

According to returns received.		Estimated no. of employees with		ment during the quarter.	Percentage or rise or fall.	
Male. Fomu.le		defaulting To establishments.				
9	10	11	12	13	14	
1,76,778	8,628	155	1,85,561	-}-4,206	2.3	
17,588	423	••	18,011	+707	4.1	
76,949	9,522	••	86,471	+501	0.6	
24,187	366	10	2 4, 56 3	⊢50 9	2.1	
1,15,101	2,544	77-133	1,17,645	+4,037	3.6	
51.866	6,776	1,486	60,128	+1,255	2.1	
8.25	60		385	+11	2.9	
3.47,698	25,775	1,651	3,75,119	+7,189	2.0	
4,62,794	28,319	1,651	4,92,764	+11,226	2.3	

वस्त्रमंत्र तपने

TABLE STATEMENT SHOWING CHANGES IN LEVELS OF EMPLOYMENT IN THE PUBLIC

		eporting shments.		Tetal number of employees on- 31st December, 1958.				
Section of the Public Sector.	Addressed. Responded.		Per- centage	According to returns received.		Estimated no. of employees	Total	
			of response.	Malo	Fomale.	with the defaulting establishments		
1	2	3	4	5	6	7	8	
1. Central Government other than Railways.	157	156	99.4	24,377	365	10	24,752	
Railways	6.1	62	96.9	1,15,103	2,544	600	1,18,147	
SUB-TOTAL	221	218	98.6	1,39,480	2,909	610	1,42,999	
2. State Government	1,773	1.773	100	1,77,114	S,5 3 9		1,85,653	
3. Quasi Government—— Central State	110 122	107 122	97.3 100	52 ,527 1 7,529	6,800 376	2,630	61,95 17,905	
SUB-TOTAL	232	229	98.7	70,058	7,176	2,630	79,862	
. Local Bodies (including Cantt., Boards).	356	356	100	77,288	9,624	and a second seco	86,912	
Total for Public Sector	2,582	2,576	99.5	4,63,938	28,248	3,240	4,95,426	

नेक्सिन नपूर्न

76. SECTOR IN BIHAR STATE DURING THE QUARTER JANUARY—MARCH, 1959.

A	31:	_				
According to returns received.		Estimated no. of employees with the	Total.	Rise (-) Fall (—).	Percenta; of rise or	
Male.	Female.	defaulting establishments.	10bar.		fall.	
9	10	11	12	13		
24,884	380	10	25,274	+ 522	1 2.	
1,17,267	1,818	1,100	1,20,185	+1,938	r 1 (
1,42,151	2,198	1,110	1,45,459	+2,460		
1,79,003	9,285		1,88,288	+ 2,635	, 1.	
52,645 18,477	6,871 418	2,930	62,446 18,895	+ 489 + 990	; 0 ,8 ·; δα	
71,122	7,289	2,930	81,341	+ 1,479	; ; 1.:	
78,086	9,705	. 14	87,791	+ 879	1.1	
4,70,362	28,477	4,040	5,02,879	+ 7,453	: L.	

यदायेव उपन

- 14. The problem of the employment of educated persons cannot be separated from the general subject of economic growth and full employment.—The ultimate and permanent solution of the problem of unemployment of educated persons can be found only in the growth of the entire economy solving the problem of employment as a whole. In fact, the long-run expansion of the economy based on technology and science, fundamental and operational research would tend to create greater and greater demand for educated persons possessing scientific knowledge, technical know-how and a high general ability and adaptability acquired through education. Economic progress has continuously tended to reduce the demand for mere muscular efforts and hard manual labour. Every step in economic progress and growth of technology during the last century and a half has tended to take off the load of drudgery and physical strain on the worker but has increased the demand on intelligence, adaptability, initiative and sense of responsibility. A recent study has established further that apart from the demand for educated and intelligent workers, supervisors and technicians in the operation of industries, another twenty per cent of the total work force in an advanced and a growing economy is required for the overhead responsibility of creating ideas, innovations, variations and inventions by operational as well as fundamental research. Another study conducted by the U.N.O. has shown that there has been a steady tendency for the percentage of salaried posts in the industrial establishments to grow relatively to the number of wage-earners. Evidently all these factors would continue to create a growing demand for educated persons in a growing economy.
- 15. But the problem of the educated unemployed calls for separate solution in the transitional stages of a growing economy.—The foregoing considerations show that in the long run there would be no separate and distinct problem of unemployment of educated persons apart from the general variations in the level of unemployment as a result of imbalances in the normal process of growth of an advanced economy. However, the difficulties, hardships and social dangers arising out of unemployment of educated persons in a backward economy on the first steps of growth are real and call for emergent short-term measures. It is these measures which we are going to consider in the succeeding paragraphs. The subject of general growth of employment has been considered separately in a number of other chapters.
- 16. Interim and final recommendations.—We have already pointed out that this Committee has also been functioning as a standing advisory committee ever since its inception. Hence the interim recommendations submitted from time to time were considered, and such of them as were accepted by the Departments concerned, were given effect to. However, in order to present a complete record, they are being included in these final recommendations to the extent to which it is necessary to compile them here.
- 17. Desirability of drawing up forecasts of employment opportunities.—The Sub-Committee has laid emphasis on the need of forecasting and making numerical estimates of job opportunities ten years ahead in all spheres of employment in public and private sector and on the setting up of a government organisation for the purpose. While a forecast so far in advance may not be easy in view of the rapid changes which are taking place, the growth of the economy according to planned lines of development and formulated targets does make it possible to prepare broad forecasts. Moreover, the fact that much of the skill and general ability of the trained personnel may be used over a fairly wide range of jobs may also make broad forecasting possible. Finally, as the work of the Employment Market Information Programme becomes more systematic, there would be more ample data available for such forecasting. We have also referred to the progress made in job analysis and to the need of a national dictionary on the subject. We, therefore, recommend that the subject of forecasting job opportunities quantitatively should be taken up more comprehensively on the line on which the National Coal Development Corporation formulated its requirements up to the Third Five-Year Plan Period.

We endorse the recommendation of the Sub-Committee that these forecasts should by given wide publicity and that the educational authorities and institutions should shape their own programme of work in the light of these forecasts. We further recommend that the authorities responsible for vocational guidance should be in full possession of the details of the structure of the economy in its dynamic aspects and of every progress made in job analysis. We recommend that the need of combining specialised training with a training in general ability and capacity should be kept in view by all concerned in view of the difficulties of drawing up very detailed forecasts of the personnel requirements. For, after whatever may be done by the educational institutions, the preliminary in-plant training and initiation of the recruit cannot be substituted by any other system.

18. The types of the recommendations for the relief of the educated unemployed persons.—A number of broad types of avenues for the employment of educated persons have been considered here and in the succeeding sections.

Firstly, there is the expanding scope in the teaching profession and in the administrative services.

Secondly, there would be a growing demand in the economic enterprises of the public sector.

Thirdly, there would be the demand for educated persons as technicians, supervisors and highly skilled and educated workers in the private economic sector.

Fourthly, with special efforts, scope for small private capitalist enterprises can be created in industry, servicing, commerce and agriculture in which the emphasis would be on the managerial or on the technical-cum-supervisory or managerial role of the master or members of a partnership.

Fifthly, there would be the still smaller enterprises in which the master would be very much like the master craftsman of the pre-machine age and would be working with his own hand with the help of other family members or a wage-earning assistant. In recommending the opening of high schools imparting training in erafts along with literary education and the opening of other technical schools for further training on the same line because the mixed literary and craft training may not be adequate, the Sub-Committee thinks that such vocational training would enable the youngmen to set up their own business in place of their entering the labour market.

This category of training and preparation for self-employment will have to be undertaken with great eare and eaution for more than one reason. Firstly, the capacity for independent enterprise or the inclination for it is not very common. Secondly, educated persons may not generally like it. And finally, unless very great care is taken for selecting the trades whose products have got a ready market and the products do not accumulate and block the slender financial resources of the small men, those engaged in them may be subjected to hardships and under-employment. It would be necessary to launch such enterprises only when the flow of the products can be guaranteed to be regular. Even if educated persons are prepared for this class of enterprise, such trades can best flourish as ancillary to and under the patronage of larger enterprises, or when appropriate marketing facilities have been organised, as in the case of the hand-loom industry.

Finally, there is the recommendation for the opening of technical schools such as have already been started by the Department of Industries for training skilled mechanics, fitters, moulders, smiths, etc. This training is evidently meant for producing skilled men for wage work. It is clear that the programme of out-turn of the trainees

has got to keep pace with the demand for them as a worse kind of unemployment would be created unless they are quickly absorbed. Although the scheme of vocational guidance in an expanded form has been operating only for the last four or five years, the Employment Exchanges have already been reporting much unemployment among this category of trainees.

One of the reasons for unemployment among the personnel trained at the technical institutes set up by the Industries Department or the Labour Ministry of Covernment of India is that the industries do not find these candidates coming up to the mark in the trades in which they hold the certificates. A glaring instance has come to the notice of the Committee in which a big firm, being in need of a large number of switchboard attendants, could not recruit more than a few candidates who had passed out from these institutes as they were found to be totally lacking in the knowledge of certain elementary things. The same has been found to be true of the persons who are trained as electricians or fitters at these institutions. The result is that whereas on the one hand these institutes are turning out a large number of young men who claim to have received technical training, which should enable them to get into suitable jobs, there are many skilled jobs going vacant, which industries are mable to fill with these men. This causes great frustration among the young men and also compels the industries to draw upon men from outside the State. The situation calls for immediate remedial measures. We would, therefore, strongly recommend that the proposed State Committee on Employment should constitute a Suh-Committee consisting of representatives of Industries and Labour Departments, Teclmical Institutes and selected industries to examine this question in detail and make suitable recommendations at an early date. It is clear from experience that the training has got to be improved to make the trainees fit for the work for which the employers would recruit them. It also appears to be necessary that refresher courses or practical training should be arranged for those who have already passed out but have not been found fit for the trade in which they have been trained. We would lay considerable stress on this whole question as it has assumed great urgency.

19. A number of the succeeding recommendations are of a general character and certain others are specifically meant for the relief of educated unemployed.—Among the recommendations which follow there are many which have already been considered in the chapter on the Secondary Sector. It has not been possible to go into all their details. All of them which require a moderate amount of capital but a high intensity of personal attention of the master are suitable for educated youngmen. Each of them requires very detailed examination with regard to the technical side, financing and marketing of the products before they can be adopted for the relief of the educated persons.

Next, there are a number of concrete recommendations relating to industrial and servicing activities which have been specifically worked out for educated persons with limited capital resources.

20. Employment generated by the development of primary education.—Article 45 of our Constitution provides that 'The State shall endeavour to provide, within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of fourteen years'. Taking into account the financial resources and priorities perhaps it is not possible to implement this within the time limit given. We have, however, noted with satisfaction that the State Government has decided to provide free and compulsory education for all children up to 11 years of age by the end of the Third Plan period. It is desirable that a phased programme of the development of primary education is pursued vigorously. It has been estimated that if free and compulsory education is introduced from now on through the Third Plan period, all the unemployed matriculates and most of the annual additions

to the number during the next few years would be absorbed in the teaching profession. The progress of the scheme of expansion of education during the last few years and the future programme is described in the succeeding paragraphs.

21. Appointment to posts of teachers in the First, Second and Third Plan period.—During the First Five-Year Plan period 10,475 teachers were appointed under the Programme of Expansion and Improvement of Primary Education in Bihar. Of them 3,125 were appointed under the Scheme for Relief to Educated Unemployed and the remaining 7,350 out of the Central grant received on recommendations of the Finance Commission. Government of India's assistance was 75 per eart during the first two years of the operation of the scheme, 50 per eent in the third year and 25 per eent in the fourth year. Thereafter, that is, from 1957-58, no Central assistance was available. This means that the liability of the State Government has increased progressively.

During the first three years of Second Five-Year Plan, 5,390 teachers have been appointed, for which Central assistance to the extent of 50 per eent was available. In case of Basic Schools, this assistance is higher, viz., 60 per cent. Besides, 1950 teachers have been sanctioned to be appointed during the year 1958-59 under what is known as the "Scheme for Relief to Educated Unemployed" the cost of which is borne by the Union Ministry of Education within the Plan eeiling.

During the remaining two years of the Second Five-Year Plan further avenues have been provided for employment of approximately 16,000 teachers under the normal Expansion and Improvement Programme and another 4,500 teachers under the aforementioned Centrally-aided schemes of relief to educated unemployed. It is expected that employment would be found for an additional 75,000 teachers for implementation of the programme of universal free and compulsory education for all children up to 11 years of age by the end of 1965-66. Women teachers are expected to constitute a large percentage of the additional staff. A proportionate increase in the number of male and female teachers in Middle Schools is also envisaged.

22. Employment in private elementary and kindergarten schools.—We recommend that the government should adopt a liberal policy towards encouraging the establishment of private elementary and kindergarten schools for which there is a considerable demand in the urban areas and in which parents and guardians are prepared to pay quite high rates of fees in order to enable the children to receive more intensive attention.

This recommendation of ours is based on a number of important eonsiderations as given below:—

- (a) It would provide scope for employment and self-employment for a large number of young men and women in the urban areas.
- (b) To the extent to which the children of the families with higher paying capacity attend these schools, there would be a release of funds for providing additional free schools for the poorer section of the community.
- (c) Even in the richest countries of the world providing full facilities for free education right up to the secondary stage, a majority of the parents prefer the more efficient fee-charging schools to the state-managed free schools on account of the greater attention paid to the children in private schools.
- 23. Employment of women teachers for primary and kindergarten schools.—The Committee endorses the opinion of the Sub-Committee that for the lower primary and kindergarten schools, women teachers should be given preference. As the expansion of primary

and girls' education would call for the appointment of a large number of lady teachers and as residential difficulties would be a serious handicap to their taking up work in the rural areas, provision of quarters for them is recommended.

- 24. Minimum qualification of primary school teachers.—We recommend that Government should make the Secondary School Examination Certificate the minimum qualification for elementary school teachers in so far as they are available.
- 25. Adoption of the principles of the Basic system of education.—We recommend that the fundamental principles and methods of the Basic system be introduced in all primary schools and that the distinction between the Basic and the non-Basic schools be done away with.

This measure is necessary in view of the large scale expansion of education ultimately aiming at free and compulsory instruction which is being introduced and the necessity of training the senses of the children and of inculcating the habit of manual labour. It is feared that unless this measure is adopted, the realistic approach to life and work which came out of actual work with their parents to the children in rural areas, would be completely lost. It is also to be noted that all the advanced countries of the world have now adopted the system of education for children in which purposeful activities have become a matter of routine. This emphasis on the training of the senses along with that of the mind becomes imperative for a technological society.

- 26. The necessity of increasing the ratio of teachers to pupils.—The pupil teacher ratio of 40:1 at the elementary stage adopted at present by Government appears to be high. We recommend that it should be 30:1 and all attempts should be made to achieve this as quickly as possible, even though the Committee realises that it may be difficult to attain the desired ratio in near future both for financial reasons and on account of the likely dearth of teachers if the system of compulsory education is introduced. Even with a pupil teacher ratio of 30:1, sufficient personal attention to the children may not be possible but this is the least which should be aimed at.
- 27. Training and practising schools.—The starting of the large number of primary schools requires the services of trained teachers for which training schools will be needed. We recommend that the practising schools attached to training schools should be raised to the middle standard, and that for the training of the matriculates at least graduates, already trained, should be appointed. It is further recommended that the trainees, should be given intensive training in manual work so that they may be able to impart this kind of training to the pupils.

It is learnt that all the training schools for training primary school teachers have been expanded and reorganised during the last eight years and new training schools would be opened.

28. Increase in the intensity of inspection and supervision.—The number of new primary and middle schools has increased and will increase further when the constitutional obligation assumed by the country is implemented. We note with satisfaction that the decision of having one Sub-Inspector of Schools for every 50 schools has been implemented. It is recommended that suitable increase in the higher grades of the school Inspectorate should be effected.

We recommend this measure specially on account of the rapid economic growth on which we have embarked upon and the necessity of continuously relaying to the teachers all new improvements in the methods of instructions and changes in the outlook and attitude. Modern system of education, even primary education as preparatory to higher school education or as a system complete in itself, has to put

on an increasing load of knowledge on the modern child and this is possible only if the learning process is made as economical of energy as possible. Hence the teaching methods have got to be supervised effectively. The inspecting personnel at each level has to function today both as a foreman as well as a teacher of the teachers. All these responsibilities can be discharged only by means of a greater intensity of inspection and conferences of teachers under the guidance of inspecting officers where knowledge can be relayed and the lessons of experience pooled and exchanged.

29. The note below gives an account of the work and programme of the Education Department in connection with the appointment of additional Inspecting and Supervisory staff required due to increase in number of pre-primary and middle school units under relief to Educated Unemployment Scheme.—It has been already decided to have 574 posts of Sub-Inspectors at the rate of one Sub-Inspector per Anchal during the Second Plan Period within Rs. 25 crores ceiling. At the rate of 50 schools per Sub-Inspector, these 574 Sub-Inspectors will be able to look after about 28,700 primary schools. This is the number of Primary Schools expected to be attained by the end of the Second Plan period within the ceiling of Rs. 25 crores fixed for Education. Under the present Unemployment Scheme No. 1, fitteen thousand additional primary schools are expected to be opened which will require 300 additional Sub-Inspectors at the rate of 50 schools per Sub-Inspector. Thirty additional posts of Sub-Inspectors will be required for leave and deputation reserve. In all, therefore, 330 additional posts of Sub-Inspectors will be required.

As regards Deputy Inspector of Schools, provision has to be made for the additional staff required for implementing the schemes of the Second Five-Year Plan. Under the present Unemployment Scheme No. 2, two thousand seven hundred and fifty additional middle schools are expected to be opened out of which 1,375 will be of the basic type and 1,375 will be of the conventional type. The standard fixed is one Deputy Inspector for 40 middle schools of conventional type and one Deputy Inspector for 35 middle school of the basic type. According to this standard, 74 additional Deputy Inspectors will be required. In the case of Sub-Inspectors, provision has been made for a peon and in case of Deputy Inspectors two clerks and two peons each. The total cost in respect of this scheme will be as Rs. 50.59 lakh recurring and Rs. 2.62 lakh non-recurring. The annual recurring cost carried forward at the end of 1960-61 will be Rs. 16.67 lakh recurring.

30. Opening of Social Education Centres under Central Schemes of Relief to Educated Unemployed.—The Sub-Committee had sent up as one of the interim recommendations a scheme for the opening of Social Education agencies. The following note gives an account of the work done by the Education Department.

"During the First Five-Year Plan, under the Central Scheme of Relief to Educated Unemployed, 350 Social Education Centres were opened. Each of these social education centres was provided Rs. 760 per annum as the average salary of Social Education Workers (instructors) and a contingency at the rate of Rs. 200 per annum.

Under the present scheme it is proposed to open 1,250 more Social Education Centres phased over the plan period at the rate of 250 centres per year. Recurring cost has been calculated on the basis of Rs. 850 as average salary of a Social Education Inspector and Rs. 450 as contingency per annum. The increase in the salary of instructors has been necessary as the salary scales of untrained and trained Matriculates and untrained graduates or trained I. As. have been raised during the Second Five-Year Plan. In view of the activities of these Social Education Centres which include besides imparting literacy to adults, organisation of physical culture classes or Akharas, children's

elubs, library-cum-reading rooms and other social and cultural activities. The amount of contingency per centre is proposed to be raised from Rs. 200 to Rs. 450 per annum to enable the centres to manage their work efficiently and also to spend a sum of Rs. 100 for the purchase of periodicals and magazines for the reading room.

- A non-recurring grant of Rs. 500 is also proposed to be given for equipment, furniture, purchase of Petromax and Durries as well as musical instruments, etc., as it is felt that the centre would be greatly handicapped in its activities without these materials.
- A total of 1,250 centres giving employment to 1,250 persons at a cost of Rs. 55 lakh including Rs. 48.75 lakh recurring is phased during the plan period."
- 31. An enquiry into the lowering or deterioration of the employment value of the educated persons in Secondary Schools is recommended.—We place it before the Government that:
 - (a) the progress of technology imposes on the educational system in general and on schools and colleges in particular a new responsibility of orienting or even training the young persons as economic functionaries over and above the classical responsibility for making them well-informed citizens;
 - (b) the enormous deadweight of mere knowledge which an average man has got to acquire and carry today as a citizen and as an economic functionary is really great and continuously being added to and has got to be imparted at the secondary stage of education in addition to the classical objectives of the development of personality and character building;
 - (c) the system of Soviet education seeking to develop the youth as economic functionaries and to develop their employment value by putting a high load of guided and supervised work on them has incidentally solved the problems of self-discipline of the pupils as well as social discipline in schools and has produced solid results.

We recommend that in view of the facts given above and in view of the obvious failure of our educational system to attain the qualitative level of secondary education in other countries, a detailed enquiry into the concrete factors lowering the employment value of our youth may be made by means of general investigations as well as case studies.

- 32. A higher ratio of teachers to the pupils in the secondary schools is recommended.—For the reasons stated in the last paragraph and in view of the large existing size of the secondary school classes of 50 to 60 children, we recommend that the teacher pupil ratio of 1:25 should be aimed at.
- 33. A balanced and carefully planned technical orientation of secondary education is recommended.—We recommend that a carefully planned technical orientation be imparted to the education of the youth at the secondary stage, keeping in view the facts noted below:
 - (a) A narrow specialisation at this stage would restrict the development of that general ability and adaptability of workers and technicians which is necessary in a growing economy;
 - (b) A proper training of the hand and the senses can achieve the maximum of results only if started at the age of 13 or 14 as established by the experience of the armed forces, of the mercantile marine and of the occupations requiring specialised skill of the hand and the senses.

- (c) In view of the fact that the pupils would be detained at the secondary stage of education upto a higher age than before under the Higher Secondary School system, the responsibility for a proper balancing of technical and general education has been increased further.
- 34. The employment of a science graduate in every high school imparting general education is recommended.—The teaching of general science is compulsory at the secondary school stage. For the teaching of science subjects, we recommend that each school should immediately appoint a qualified science teacher who must be at least a graduate in science.

No detailed arguments are now necessary for making out a case for education in general science as a part of even the old liberal education in a society based on technology and owing to the growing impact of science on every day life and on all economic activities.

35. Employment of the holders of Masters' Degrees in High Schools.—The Three Years Degree Course has finally been accepted. The conversion of High Schools into Higher Secondary Schools is an integral part of the scheme. We understand that the Education Department of the State Government are endeavouring to convert all High Schools into Higher Secondary Schools by March, 1966. For this conversion it is necessary that well-qualified teachers who may be able to teach with an efficiency of the same standard as in the Intermediate classes of the University, are appointed in the Higher Secondary Schools. If this is done, the holders of the Masters' Degree will get greater opportunity for employment. The starting of the Higher Secondary Schools should be so phased so that by the time all the High Schools are converted into Higher Secondary Schools no unemployment amongst the holders of the Masters' Degree may be created by the abolition of the pre-University classes in the Colleges and in the University.

It is learnt that the Education Department has made it compulsory to have on the staff of the Higher Secondary Schools at least 3 M. As.

36. The establishment and running of private high schools with the minimum of government control is recommended.—We recommend that private high schools charging higher fees for providing more intensive school work by increasing the ratio of teachers to pupils be encouraged, and that they may be allowed full scope for variations in their methods of work and curriculum subject to their conforming to the prescribed curriculum at the final stage of examination if they present candidates for the secondary school certificate examination.

We make this recommendation for the reason that private non-conforming schools, if they are well-managed, are likely to make new experiments and introduce variations which are necessary for progress. Secondly, it has been observed that the level of teaching and discipline is better in such schools.

37. Employment in the physical training of the students of schools and colleges.—Physical training in schools and colleges as it exists at present is inadequate. This has got to be expanded on a scientific basis and teachers fully qualified both in indoor and outdoor games should be appointed. We recommend that a properly trained instructor should be appointed in every school and college. To achieve this it will be necessary to overhaul the existing institutions of the State which produce qualified teachers for the purpose.

It is learnt in connection with this recommendation of the Sub-Committee that the Education Department has already reorganised the entire system of physical education and of the training of the instructors.

- 38. Vocational training in high schools.—We recommend that those types of vocational training like type-writing, shorthand, accountancy, etc., as can be combined with general education, be imparted at the school stage in order to increase the employment value of the pupils passing out of the secondary schools.
- 39. A school for training in river navigation.—We endouse the recommendation of the Sub-Committee for opening a school for imparting training in inland water navigation by powered vehicles, a scheme for which had been prepared by the Labour Department in 1950-51. In the chapter dealing with employment in river navigation, w have seen how Patna is the most important river port on the Ganga. We have also seen that the Ganga-Brahamputra Water Transport Board has been experimenting with pilot projects and the vacuum created by the withdrawal of the services of the Joint Steamer Campanies from 1958 may be filled by a more organised system of river transportation.
- 40. The necessity of re-organising the syllabuses of the subjects taught by the Universities.—While research is one of the important functions of the University, it is the University teaching which determines the employment value of the students as well as their value as research workers. We recommend that the Universities of this State be requested to examine the syllabus of each subject from the points of view of (1) the requirements of a technological society, (2) the needs of the public examinations and of (3) the preparation of future research workers. We may note in this connection that the University Grants Commission is also considering the subject of the reorganisation of the syllabuses in the Universities.
- 41. University courses and the requirements of a technological society.—Apart from the revision of the syllabuses of the subjects which are being taught, we recommend that the requirements of a growing and diversifying economy for teaching in other subjects to produce economic functionaries like works and business supervisors, accountants, auditors, cost accountants, bank assistants, co-operative organisers, etc., be taken into account.
- 42. Appointment of College Tutors.—We recommend the appointment of first and seeond Class M.As. and M. Ses. as college tutors in sufficient numbers to provide individual attention and guidanee to the students of the eolleges and to enable the qualified unemployed youngmen to be absorbed in this useful work of improving the proficiency of the students. We reinforce our recommendation by drawing the attention of the Government to the poor attainments with which the students reach the eolleges from the schools and to the possibility of rectifying the deficiencies by means of intensive tutorial work in the colleges. We further stress that one of the reasons of indiscipline in the eolleges is the deficiency in the actual volume of guided work taken from the students and this work can be imposed fruitfully only if a sufficient number of college tutors are appointed. The poor performance of the Bihar candidates in the all-India competitive examinations, also strengthens the case for more intensive tutorial work.
- 43. Investigation into the causes of the failure of Bilar candidates in competitive examinations.—We recommend a detailed investigation into the causes of the failure of the candidates from Bihar in securing a proportionate share in the different administrative, technical and economic services of the Central Government. We do not consider that any generalised findings would be very helpful and we consider that the deficiencies have got to be established and measured in each subject of the examination including the performance at the interviews. We even recommend that the Government of India themselves should investigate into the causes of group and regional deficiencies of the candidates.
- 44. Deficiency in English of the Bihar candidates.—The Committee has been able to establish that among the causes of the low percentage of success of the candidates from Bihar is their inadequate command over the English language, and specially spoken English along with their poor performance at the interviews. The Committee

believes that those deficiencies are capable of being remedied to an appreciable extent by the introduction of an intensive tutorial system as already recommended. The rectification of the deficiency in language, however, cannot be achieved by any intensive work during a brief period and must be taken up in the very first year of a student's admission into a college.

- 45. The opening of new Arts Colleges.—During the last 10 or 15 years, there has been great increase in the number of colleges which impart liberal education. Liberal education is good for the general improvement of the outlook of the people, but in its turn it increases the number of the educated unemployed. We are, therefore, of the view that in future new eolleges should be started only after mature deliberations.
- 46. Geological survey of the State.—The Committee has noted with satisfaction the creation of the Department of Geology under the Industrics Department and recommends that a scheme may be prepared under which the newly created Department may, with active participation of the Universities, be able to make a quiek and intensive survey of the minerals with a view to help a rapid industrialisation of the State. We believe that there is scope for supplementing the geological survey carried on by the Government of India.
- 47. Unemployment of Commerce Gradua es.—We have reasons to believe that a good number of Bachelors and Masters of Commerce are going without jobs. This is not surprising as the expansion of industry in this State has been rather slow. Moreover, these graduates are not very useful unless they are given practical training. We, therefore, recommend that short course training should be devised in consultation with the Bihar Chamber of Commerce to ensure better employment opportunities for the commerce graduates.
- 48. Overproduction of technically qualified persons to be avoided.—We recommend that the Government should keep a watch on the manifestation of any sign of unemployment among the technically qualified persons and take prompt short-run measures of relief and adopt the long-run policy of not permitting any over-production.
- 49. Improvement in the quality of training in the Medical and Engineering Colleges.—We recommend that special attention be devoted to the quality of teaching and of practical training in our Engineering and Medical Colleges and that the number of teachers in them be increased to the appropriate level.

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50. Employment of Medical Graduates.—Medical College and a good hospital go together. The Ranchi Medical College is already coming up and the Chotanagpur Division will have a good hospital attached to this college. The only Division left without a Medical College is the Bhagalpur Division and, therefore, we recommend that a Medical College should be established at Bhagalpur.

Government have taken in hand the work of Community Development in a phased manner. According to the present programme the entire State would be covered by Community Development Blocks by the end of 1962-63. There is a provision of two Doctors in each Community Development Block. A time will come, when Community Development Blocks will not be able to absorb a large number of doctors per year if only two doctors are employed in each block. The Employees' State Insurance Scheme is likely to expand. The requirement of doctors in industries is sure to go up. We have to look to the preventive side also and this will also require the services of a good many Health Officers (Doctors). If the financial resources of the State improve, the number of doctors employed in Community Development Blocks may be steadily increased so that the recommendation of the Bhore Committee in

this matter is implemented. A stock taking of the production of Medical Graduates should be taken from time to time and the admission in the colleges may be regulated also from time to time to avoid unemployment amongst them. We also recommend that the Medical Colleges should now pay more attention to research, specialised training and raising the standard of teaching.

- 51. Subsidising Self-employed Doctors in Rural Areas.—We recommend that besides the appointment of doctors and lady doctors in every Development Block, subsidised practitioners may be encouraged to settle down in the rural areas. The scheme of appointing doctors attached to a certain number of private high schools with an honorarium, provision of the accommodation of a cilnic in the school and permission for private practice which was considered some years ago in the Education Department appears to deserve serious consideration. It is believed that the appointment of one or two doctors in each block with a large population falls far short of the standard of medical help recommended by the Bhore Committee. Moreover, as national income increases, the capacity of the economy to pay for a larger number of private practitioners and support them would increase.
- 52. Employment of Agriculture and Veterinary Graduates.—There is adequate scope at present for employment of Agriculture and Veterinary Graduates. Intensification of agriculture is necessary if we have to feed our increasing population. The cattle wealth has also got to be improved. Hence, as soon as possible, the number of Agriculture and Veterinary personnel in Community Development Blocks should be increased. This increase will be perfectly justified because one Agriculture and one Veterinary Graduate cannot give advice and see to his advice being followed in a block.
- 53. Employment relief for Law Graduates.—The abolition of Zamindari and introduction of Panchayat Raj Act has greatly affected the legal prefession. In order to give the lawyers some relief we recommend that the upper age limit for law graduates for appointment in Government services should be raised by two years and 25 per cent of vacancies of Revenue Circle Officers, Emergency Officers (in connection with abolition of Zamindari), Panchayat Supervisors, Revenue Circle Inspectors, etc., should be reserved for practising lawyers and recruitment made through competitive examination from amongst the law graduates. The Mukhias and Sarpanches of Gram Panchayats who have to administer law are greatly handicapped in their work on account of lack of proper training. It is, therefore, recommended that lawyers should be appointed to give them proper training.

No more Law Colleges need be started, but facilities should be provided for specialised training in commercial, company and labour laws, etc.

54. Location of All-India offices in Bihar.—The location of All-India offices in any state results in broadening the outlook of the educated persons of that State. We in this State have no such offices and there are also no good agencies at the secondary and college level to give information to the educated. At present the Railway Service Commissions which deal with the personnel employment under the railway in this State are located in Calcutta and Allahabad. We strongly recommend that the State Government should approach the Union Government to locate the Headquarters of a regional Railway Public Service Commission at Patna.

One bench of the Income-Tax Appellate Tribunal which was located at Patna had been shifted. We welcome the shifting back of this bench to this State. We also recommend that branches of all-India offices such as the Defence Organisation, should also be located in this State.

- 55. Recruitment in the subordinate services of the Railways.—We recommend that the State Government be pleased to move the Government of India to adopt the system of the Posts and Telegra phs Department for the recruitment of the junior and subordinate personnel on a state basis. The Committee notes that the location of the recruiting authorities outside this State creates various handicaps for the local candidates. It is also gathered that the handling of an enormous number of applications in one lot for a number of states by the Regional Railway Public Service Commissions makes any careful scrutiny impossible and liable to various kinds of errors.
- 56. Recruitment for the services of the State Bank and the Life Insurance Corporation.—The growth of the economy as a whole and rise in the level of national income from year to year would lead to the expansion of employment in the banking and life insurance business. We recommend that the recruitment in these services may be so organised that suitable candidates from this State are given due considertation. The location of the controlling offices outside the State is a serious handicap for the candidates from this State. We recommend that a proportionate number of candiates should be recruited by means of competitive examinations conducted by the controlling authorities for this and for other states.
- 57. Recruitment to the Armed Forces.—The Committee brings to the notice of the Government the importance, in aggregate, of employment in the Land Forces, the Navy and the Air Force of all grades of young men recruited as combatants, artisans, mechanics, etc., and advises that the proposed State Employment Committee and the Education Department should take adequate steps to bring these avenues to the notice of the students of the High Schools. Developments in the science and practice of war have shifted the emphasis from pure muscular strength to the capacity for bearing hardships and to intelligence, alertness and skill. Even an infantryman of today is not a mere cog and in more than one way his job is a skilled one to which youngmen should be attracted. The in-service general training as well as the training in crafts imparted by the Armed Forces is of a high order.
- 58. Recruitment for the Mercantile Marine.—The Committee recommends that the opening for secondary school boys in the Mercantile Marine and the method of recruitment be given due publicity. The Committee learns that many years ago, the Director of Public Instruction of Bihar had received a very appreciative lett r on the performance of the Bihar apprentices from the authorities of the Training Ship Dufferin.
- 59. Arrangements for the training of higher technical and managerial personnel for industries.—Industries require trained personnel of different technical and managerial categories. As facilities for specialised training are not available in the State, industries prefer trained persons from other states to appointing fresh local men and then giving them the necessary training at their expense. We therefore, recommend that the State Government should send suitable candidates of this State for training outside the State and outside India in branches in which there is demand in the industries of the State and for which local qualified candidates are not available. We are aware of the system followed by the large industries in the public sector for arranging for such training. But there are other industries for which the State Government is expected to take the measures we are recommending.
- 60. The necessity of a more rapid industrialisation of the State.—The Sub-Committee has made recommendations for a more rapid pace of industrialisation with a view to increase the employment of educated persons and it has noted the lack of enterprise and investment inclination in the State. This subject has already been dealt with in the chapter on secondary sector and the necessary recommendations have been made there.

- 61. Employment of Bihar candidates in enterprises in the public and private sectors located in Bihar.—The Committee endorses the following recommendations of the Sub-Committee.
 - "In order to solve the unemployment problem in the State, we recommend that the State Government should persuade the enterprises working in Bihar to realise their responsibility for taking active measures to foster the employment of educated persons from this State by giving preference to local people subject to the observation of the criterion of efficiency as otherwise the State will not be ab'e to get any substantial relief in the solution of the unemployment problem."
- 62. Appointment of a Liaison Officer.—We endorse the following recommendation of the Sub-Committee:—
 - "We further recommend that a whole-time Liaison Officer should be appointed to negotiate with all the major industrial concerns of the State in the public and the private sectors in respect of appointments by the concerns and facilities to be given to the local employees about their training either in the country or outside so that local people may get their due share in matter of appointment in posts requiring technical skill. He shall also act as a Liaison Officer for all non-competitive posts at the disposal of the Government of India."
- 63. Employment of educated persons in private small capitalist and one-man enterprises.—The recommendations made so far concerning the employment of educated persons in salaried posts in administration, techning, trade and industries in the private sector and in public enterprises have now got to be supplemented by the consideration of various avenues for private enterprise. Except in a thorough-going socialist society and with the most strenuous efforts, it may not be possible to provide jobs for every educated person. Nor would it be desirable that the selfemploying and independent occupations and professions which develop initiative, enterprise and responsibility are neglected. We, therefore, recommend a number of measures which would require the fostering care of the State in the initial stages. We further recommend that avenues for self-employment and for private enterprise for the educated persons should not be treated as merely residuary avenues but should be helped to thrive on their own merit. We strongly feel that for the success of a democracy, a sector for independent sources of livelihood is to be maintained from which the men in public life would come to serve the nation. One of the criticisms of the modern educational system ever since the days of the Swadeshi Movement has been that our yougmen have lost all initiative, enterprise and self confidence and are fit only for and on the look out for service. This criticism has got to be accepted with certain reservations because all technological developments and the growth of heavy and basic industries have tended to restrict the sphere for small capitalist enterprises in them. We have, however, examined in another chapter the scope which still exists for small enterprises and we can look to them for the absorption of educated youngmen. We have already categorised such enterprises and examined the prospects as well the limitation of some of the categories. In the succeeding paragraphs, certain specific occupations and groups of trades would be examined from this point of view. For, we have examined elsewhere that the growth of giant and large enterprises (both technological and managerial) and increase in national income tend to create new opportunities for small men in ancillary and derived industries, in commerce and in servicing.
- 64. Agricultural employment for educated persons.—The Sub-Committee has recommended that apart from providing employment for educated persons in paid and

salaried jobs in the services and in industries and in the openings in small capitalist enterprises, efforts should be made to organise farming as an attractive and profitable avenue for educated persons. For this purpose the Sub-Committee recommends the development of all those overhead services like irrigation, supply of improved seeds, manures and fertilisers, appliances, etc., as would reduce the risks of farming and improve productivity. Subsidiary activities connected with the use of land like fishery, animal husbandry, poultry-keeping, etc., have also been recommended. The Committee is of the view that in spite of the general flight of educated persons from land to the towns, there is considerable scope for earning a fair level of income from agriculture if the risks of farming are reduced and the amenities of rural life are increased as is being done by the development of roads, of transportation and of electricity.

We recommend the experiment of rehabilitating youngmen in the profession of farming both as a measure to increase employment as well as in the hope that successful and enterprising youngmen may set the standard of a higher level of land utilisation. Thus the experiment would be of value for the Department of Agriculture as well.

65. Small capitalist enterprises.—This Committee as well as the State Department of Industries and other authorities at the Centre have prepared a number of schemes on small capitalist enterprises. We have already noted our observations in earlier sections on the need of a cautious examination of the enterprises to be selected. We recommend that a vigoruous policy for fostering those industries which are selected carefully should be followed with special care in providing overhead facilities and an assured market. We have also expressed our anxiety about the marketing facilities which can be achieved by setting up marketing organisations in some cases and by linking the enterprises with the larger industries in other cases. All these and other points have been dealt with in the hapter on the Secondary Sector (Chapter X). We are giving here two lists of such small industries as are suitable for small capitalist enterprises. There are other occupations and enterprises on which we are making separate specific recommendations. We are reserving the recommendation about the garments industry for the chapter on the employment of women.

- 66. LIST OF SMALL INDUSTRIES SUITABLE FOR ONE-MAN ENTERPRISES.
- 66.1. The following list was sent to the Development Department by the Director, International Labour Office, New Delhi on behalf of the Study Group on Educated Unemployed of the Planning Commission in 1955:—
 - (A) Manufacturing Industries—
 - (1) Hand Tools and Small Tools.
 - (2) Sports Goods.
 - (3) Furniture.
 - (4) Building Hardware.
 - (5) Domestic Hardware.
 - (6) Cutlery.
 - (7) Agricultural Implements.
 - (8) Scientific Glassware and Instruments.
 - (9) Table Glass ware.
 - (10) Bicycle Parts and Bicycles.
 - (11) Sewing Machine parts and Sewing Machines..
 - (12) Toys..

- (13) Electric Fans.
- (14) Other Electrical Goods.
- (15) Surgical Instruments.
- (16) Manufactures of Rubber.
- (17) Pipe Fittings and Valves.
- (18) Metal Fittings for Shoes and Leather Articles and Wearing Apparel.
- (19) Stationery Articles and Fountain Pens.
- (20) Miscellaneous Chemical Industries.
- (B) Feeder Industries to large Industries.--
- (1) Foundries.
- (2) Forgings.
- (3) Tools and Gauge Making Shops.
- (4) Automobile Parts.
- (5) Machinery Parts.
- (6) Railway Wagon and Coach Parts.
- (7) Other Parts for Engineering Industries.
- (8) Electroplating and Galvanising Shops.
- (9) Welding Shops.
- (C) Servicing Industries—
- (1) Automobile Repair Shops.
- (2) Bicycle Repair Shops.
- (3) Pumps and Motor Repairs and Maintenance.
- (4) Other Machinery Repairs and Maintenance.
- 66.2. The following is a list of industries suitable for small enterprises on which the Development Commissioner, Small Scale Industries, Ministry of Commerce and Industry, Government of India has published a series of Analysis and Planning Reports.—
 - (1) Sports Goods (Northern Region).
 - (2) Sewing Machines and Parts (Southern Region).
 - (3) Bicycles and Parts (Northern Region).
 - (4) Leather Footware (Northern Region).
 - (5) Footballs.
 - (6) Wood-sheathed Slate Pencils.
 - (7) Tool Room Shop.
 - (8) Small Centre Lathes.
 - (9) Enamelled Single and Double Cotton Covered Copper Wire.
 - (10) Automobile Batteries.
 - (11) Small Scale Bicycle and Rickshaw Parts (for Bihar).
 - (12) Panel Pins and Wire Nails.
 - (13) Caffeine from Tea Waste,
 - (14) Fountain Pen Ink.
 - (15) Boot Polish.

- (16) Milk of Magnesia.
- (17) Nickel Sulphate from Nickel Catalyst Wasts.
- (18) Chrome and Vegetable Tannery.
- (19) Soil Pipes.
- (20) Village Tanned Sheep Skin.
- (21) Saltpetre.
- (22) Chrome Tannery of Cow and Calf Upper Leather.
- (23) Industrial Hand-Gloves.
- (24) Electro-plating.
- (25) Low Tension Porcelain Insulators.
- (26) Roofing Tiles.
- (27) Storage Batteries.
- (28) Electrical Accessories.
- (29) Glass Beads.
- (30) Radio Components.
- (31) Sole Leather.
- (32) Electric Cables.
- (33) Plastie Toys.
- (34) Holdalls.
- (35) Small Leather Goods.
- (36) Cast Iron Foundry.
- (37) Ferrous and Non-Ferrous Foundry.
- (38) Malleable Cast Iron.
- (39) Steel by Crucible Methods.
- (40) Barbed Wire.
- (41) Hexagonal and Square Head Machine Screws.
- (42) Pattern Shops.
- (43) Brass Utensils.
- (44) Liquor Ammonia.
- (45) Glass Bangle.
- (46) Vacuum Flask.
- (47) Glass Ampoules.
- (48) Glass Phials.
- (49) Neon and Glow Sign Industry.
- (50) Scientific Glass Apparatus.
- (51) Foot-wear.
- (52) Gent's Shoe.

67. Manufacture of Teaching Appliances.—The Committee has estimated the quantity of various kinds of appliances and instruments required by students and educational institutions. The aggregate comes to an appreciable figure and is bound to grow rapidly with the growth of schools and the introduction of scientific subjects more extensively. It is also desirable to diversify the visual side to teaching and learning to lighten the mental strain of the learning process.

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For these reasons, the Committee recommends that arrangements should be made to project young educated persons to take up their manufacture under an overall 39 Lab.—61

plan to be worked out by the Government to manufacture the kinds of appliances, instruments and visual aids required and to control any overproduction.

The Committee recommends that the scheme on this line which is being introduced by Government of Madras on the Industrial Estate at Guindy may be examined as a model.

- 68. Motorised Regular Goods Traffic by Road.—The Committee has worked out the calculations of operating goods traffic by road at a standard charge of 1.5 Naye Paise per maund-mile for regular long distance goods traffic and recommends that it may be brought to the notice of would-be educated enterprisers. Apart from providing employment to educated persons, the development of road transport would help to fill in the gap left between the transport needs of the growing economy and the railway capacity which has been calculated to come to a very large aggregate. The subject has been dealt with in the chapter on the overheads of the economy.
- 69. Passenger Buses.—The Committee notes that in spite of the nationalisation of passenger bus transport through the State Road Transport Corporation, it still leaves scope for the operation of passenger services on short runs by small owner-operated buses on lines not taken over by the State. It is, therefore, recommended that every possible concession and encouragement be extended to educated persons to undertake this enterprise. Among other measures, it is recommended that facilities for way-side services from the State workshops and Depots be extended to these private operators.
- 70. Forwarding and Clearing Agencies.—We very strongly recommend that Government do take active interest in helping the organisation of Forwarding and Clearing Agencies at every important railway station town having an urban goods traffic sufficient for at least one transport vehicle. The Committee has examined in detail the economic and social values of this enterprise besides its employment values. Such a service would not only provide employment but also a very valuable and much needed relief to the private persons and the traders. Further, it would be a valuable means for curbing corruption in the railway service. Thus it would mean an immense benefit to the large and small traders and also to private persons if they are relieved of the cost, labour and distraction of going to the railway station for enquiring about the arrival of goods for incoming traffic and about the availability of booking facility if they can hand over the railway receipt or just lodge information with the agency about the in-coming consignment. Similarly, for sending consignments they can register their needs with the agency. All the rest of the work in either case would be attended to by the agency.
- 71. Railway Out Agencie:—We bring to the notice of the Government that the Railway Board has recently liberalised the conditions for sanctioning Out Agencies with a view to establish links between rail-heads and interior markets and areas. There is a vast scope for employment of young people in this enterprise and we fear that this business, too, may get out of the hands of the people of this State by default unless suitable measures are taken to foster it for the sake of small educated entrepreneurs.

We further recommend that a survey of all such interior market places as are suitable for Out Agencies on account of the volume of traffic handled and the road communication available may be made by the co-operative efforts of the Departments of Labour and Agriculture. The Committee was able to take up only a few sample investigations in the Darbhanga district and found much scope for this enterprise. The prospects are even better in South Bihar on account of better roads.

72. Catering Business at Railway Stations.—The Committee recommends that the Ruilway Board be moved that wherever the Railway Administration has not started

eatering establishments departmentally, contract for this service be given to educated youngmen working individually or in partnerships and not to renew contracts with large contractors operating chain establishments. We believe that this measure would not only provide employment for a large number of youngmen with limited means, but would also provide a good field for practical training in managerial work.

- 73. Contract work under the Departments of the Government.—The Committee has noted with concern that even from the contract business Bihari enterprise has been ousted to a considerable extent. It is recommended that educated youngmen be projected into this enterprise which can be operated with a small amount of capital. We further advise Government that the following measures may be considered for helping new entrants:—
 - (a) Large units of contract work, unless technically necessary, should be discouraged.
 - (b) The work should be split up into such units as are complete within themselves and given out to small contractors.
 - (c) It is essential that for more than one reason a system of prompt payment of bills be enforced and the system of payments-on-account, as at present, be extended.
 - (d) Co-operative eredit on the security of outstanding and quickly maturing bills may be made available to the small contractors.
 - (e) The small contractors be encouraged to organise or join co-operative institutions.
 - (f) The Committee thinks that the old system of tender, which may be used against the small contractors, is now an outmoded system in a controlled and guided economy in which the cost-structures of an enterprise including the wage-bill can be worked out before hand and the margin of profit itself may be fixed and fitted into the cost structure. This system, therefore, requires a rational examination.
- 74. Contract work in private enterprises.—The Committee finds that very large amounts of contract work are given out by the large and medium industrial units annually. It is noted that many of them are of the type which can be taken up only by large engineering firms. But there are many other categories of work into which cducated youngmen with small capital may be projected.
 - (a) It is recommended that the Liaison Officer proposed in our recommendation may be made responsible for negotiating with the private firms for securing small contracts for our youngmen.
 - (b) It is further recommended that the methods and facilities proposed in the preceding recommendation may be adopted in connection with the contract work in the private sector as well.
- 75. Training of young persons in crafts.—The Sub-Committee has supported the views of the Mudaliar Committee on the diversification of the Secondary School courses with a view to impart training in such crafts as youngmen may adopt as vocations instead of going up for higher studies. The Sub-Committee has elaborated this recommendation as reproduced below.
 - "But in order to make them successful it will be necessary to have continuous assessment of the requirements of the different vocations in the State. We, therefore, recommend that the Board of Secondary Education or the State Government in the Education Department may appoint a small committee

for the purpose which may keep itself in constant touch with the Industries Department and the Industrial Bureau suggested elsewhere. The craft selected should be such that a student, if he so likes, may specialise in later on and make a career out of it. Crafts have, therefore, to be intelligently selected either from the list given in the Mudaliar Committee Report or from outside. Teachers for teaching the crafts should be competent so that the students may really learn something worthwhile from them".

The emphasis of the Sub-Committee on employment in handicrafts is brought out further by the recommendation that the training of youngmen in secondary schools alone would not be sufficient and that specialised training is necessary. This recommendation is reproduced below.

"Needs of technical education cannot be satisfied by diversified courses in the High Schools. It is, therefore, necessary to have Technical Training Institutions which may be able to meet the demand for the technically trained personnel in the State. It appears that the need of technically trained personnel in some trades is in excess of the training facilities available in the State. So it is recommended that the opening of Technical Training centres may be accelerated."

The educational value of all such training in a technological society has already been noted. The employment value of the handicrafts in a transitional economy, subject to the limitations and the cautions which have been pointed out are very great if the disinclination of educated persons to take up handicrafts can be overcome. The subject of handicrafts has also been considered in the Chapter on the Secondary Sector from the point of view of employment in general. We have pinned very great hopes on the handicrafts for reducing the burden of unemployment and underemployment in the rural areas in general. Even if secondary school passed youngmen continue to be averse to handicrafts, youngmen who are at least literate would be better handicraftsmen than illiterate persons. This qualification of literacy acquires an added value on account of the efforts which are being made to successfully mechanise the handicrafts by means of small hand machines and electricity in order to standardise the quality and finish and thus to enhance the survival value of the handicrafts.

CHAPTER XIV

Employment of Women.

1. DATA ON THE EMPLOYMENT OF WOMEN.

We may examine the available data on the employment of women in order to establish the problems posed in the light of which policy is to be framed. Some of these data are presented and analysed in this and the succeeding sections.

1.1. The 1951 Census Tables.—In order to avoid a recalculation of the figures after the transfer of areas to West Bengal, we take the data for Bihar in 1951. These figures may roughly be treated as the base relating to the year 1953 by which time the population in the area after transfer might have reached the level of the population of 1951.

In a total population of 402.26 lakh, the number of females was 200.00 lakh. Hence for overall inferences, the slight difference in the sex ratio may be ignored.

In the total agricultural population of 346.11 lakh, there is an excess of 2.33 lakh females. When we split it in the rural and urban sections, we find an excess of 2.36 lakh females in the rural agricultural population of 339.93 lakh and an excess of a small number of 3 thousand males in the urban agricultural population of 6.18 lakh.

On the other hand, in the non-agricultural population of 56.15 lakh, there is a male predominance of 4.54 lakh. The disparity is more marked in the urban non-agricultural population in which there is an excess of 2.25 lakh males in a total of 20.78 lakh whereas in the rural section, the excess of males is only 2.30 lakh in a total of 35.37 lakh.

It is, however, the data on the economically active number of the female population of the working age group between 15 and 59 which are more important and are presented below.

- (a) Of the total male population of 202.24 lakh, 110.63 lakh are in the working age group and of the total of 200 lakh females 109.40 lakh are in this group. This is calculated from the age composition tables giving 54.7 per cent of the population as belonging to the working age group. But allowing for various deductions as those of the student population, invalids, etc., the present formula is to consider 40 per cent of the total population to constitute the potential labour force.
- (b) Out of the 109.40 lakh females in the working age group only, 34.95 or roughly 35 lakh are economically active.

Thus, the position about the employment of women is that.

Out of 174.22 lakh female population in the agricultural sector, 31.98 lakh are economically active. Of these 31.37 lakh are active out of 171.14 lakh in the rural area and 61 thousand out of 308 thousand in the urban areas. Of the 25.80 lakh female population in the non-agricultural sector, only 2.97 lakh are occupied. Of these 2.15 out of 16.54 lakh are occupied in the rural and only 82 thousand out of 926 thousand in the urban area.

- (c) Bearing in mind that the overall proportion of male and female population is roughly equal, we may look at the data on female employment from another angle.
- Of the 110.50 lakh economically active persons in agriculture, 31.98 or roughly 32 lakh are females. Of the 14.02 lakh earning dependents, 6.49 lakh are females as evidently child labour of girls on farms is more common. This proportion of female employment in agriculture is about the same for rural as well as urban agricultural population. Even if we look at the constituent sub-classes of the gricultural population, we find roughly the same proportion. Thus, we expected a large proportion of the women in Sub-Class III constituting agricultural labour to be in the market. But out of 28.63 lakh agricultural labourers, only 8.83 lakh are women.
- (d) The non-agricultural population is 56.15 lakh with a male predominance of about 5 lakh. Of this, 16.57 lakh are self-supporting out of whom only 2.97 lakh are female. The number of earning dependents in this class consists of 1.27 lakh males and 1.09 lakh females. We find that this low proportion of economically active females is there in the non-agricultural classes whether we consider the rural or the urban population. Thus, out of the 10.67 lakh rural self-supporting non-agricultural persons only 2.15 lakh are females. Out of the 5.90 lakh urban self-supporting non-agricultural persons, only 82 thousand are females.
- (e) However, if we look to the four groups of the non-agricultural class of economically active people or to their 10 Divisions and 88 Sub-Divisions, we find women to be fairly well represented although a recent study has revealed a decline in their number in some important occupations. We shall have to take into special consideration, later on, the spheres in which employment of women has got to be fostered. In the group of non-agricultural production, out of 526 thousand self-supporting persons, only 94 thousand are women. Clearly it is a sphere in which more women might come in. In Commerce, out of 376 thousand self-supporting persons, 74 thousand are women. It is not clear how even in Transport, out of 87 thousand persons, 6 thousand are women. In the residual group of other services of 6,67 lakh persons, 1.23 lakh are females.
- 1.2. Inferences from the Census Tables.—From these data, the broad inferences drawn are that in the agricultural sector, both in the rural and the urban areas, there is a larger percentage of employment of women than in the non-agricultural sector. Moreover, employment in the urban area in the non-agricultural sector is even more meagre and calls for special consideration.
- 2. Distribution and relative strength of women in the occupational Divisions and Sub-Divisions of the Census.—Looking at the Census figures of the non-agricultural working force in the occupational Divisions and Sub Divisions we get the following results.
 - (a) In Division 0, there were over 9 thousand women in a total employment of 46.82 thousand. Considering the nature of the work consisting of stock raising, rearing of poultry, silk-worm, etc., plantations, forestry and woodcutting, hunting and fishing, this representation is not unsatisfactory. The total plantation labour force in this State is insignificant.
 - (b) In Division 1 of mining and quarrying, the employment of over 30 thousand women in an employed force of 167 thousand persons is not bad. The number according to the Chief Inspector of Mines in India for some of the subsequent years showing both the number and the trend of employment are given in the statement appended at the end of this section.

- (c) Division 2 enumerates those employed in the manufacture of food stuffs, textiles, leather, and leather goods. There were 29.3 thousand women in a working force of 144 thousand and 24.1 thousand of them were selfemployed, 3.7 thousand were employees and strangely enough, 1.5 thousand were employers. Of these self-employed ladies 5.26 thousand were employed in the processing of grains and pulses, 3 thousand in vegetable oil and dairy products, 2.5 thousand in tobacco, 5.7 thousand in cotton textiles, 3.3 thousand in wearing apparel, 1.3 thousand in jute, ropes, twines, etc., and 1.4 thousand in leather industries. The detailed figures of the employment of women in industries submitting returns to the Chief Inspector of Factories, Bihar, in the industries in this Division of the Census as well as in other Divisions are given in the statement which follows. It may, however, be noted that the figures of this statement and of the Census are not comparable because the Census tables give the figures of the small establishments or associative units not covered by the Factories Act as well as those of the self-employed persons. Even the figures in the column of the employees, therefore, would not tally with the number in the returns under the Factories Act.
- (d) In the processing and manufacture of inctals and chemicals in Division 3, out of the work force of 76.76 thousand, 5.89 thousand were women and 4 thousand were employees and 233 were employers. Of the independent workers, 1,331 were self-employed in smithies, etc. It is also unexpected that of the 4 thousand employees, 3.7 thousand were in the basic iron and steel industry. This number is much greater than what we find in the factory returns.
- There were no women employees in the machinery, engineering and pharmaceutical industries according to the Census. The factory returns however show some employment in them as given in the tables.
- (e) Division 4 accounts for other miscellaneous manufactures in which there were 19 thousand women in a work force of 92 thousand persons and 17 thousand of them were self-employed. A break-up of the Division shows 1.4 thousand self-employed in unclassed trades, 1.6 thousand self-employed in bricks, tile and clay industries, 6 thousand self-employed in earthenware, glass bangles and such industries, and 7 thousand employed in wood work. Except for small differences in the figures, the existence of these employments are corroborated by the factory returns.
- (f) Division 5 accounts for those engaged in construction and maintenance of roads, bridges, rail-roads, telegraph and telephone lines, irrigation and other works, electric and gas industry, water supply and scavenging. Out of a work force of 66.6 thousand, 16.8 thousand were women, of whom 6 thousand were self-employed and 10.8 thousand were employees. There were 3.3 thousand self-employed and 2.9 thousand employees in buildings. Of the rest, 6.5 thousand were in scavenging, 6.0 thousand of them being employees. The factory returns do not include figures of most of these employments.
- (g) Women are well represented in Commerce in Division 6. Out of 376 thousand persons, 74 thousand were women, of whom 61 thousand were self-employed. In unclassed retail trade there were 22 thousand self-employed and 3 thousand employees. In retail trade in foodstuff, there were 30 thousand self-employed women and 2.2 thousand employees. 3.9 thousand were in retail trade in fuel and 3.3 thousand in retail trade in textile and leather goods as self-employed. Fourteen hundred ladies were in wholesale trade and 418 in money-lending.

- (h) Out of about 100 thousand in transport, storage and communications, in division 7 the number of women was only 6 thousand, of whom 1.4 thousand were shown as employers and the rest about equally divided between employees and self-employed. It is not clear how 19 hundred of them were independent workers in road transport.
- (i) Division 8 includes all those who are in Health, Education and Public Administration Services. Out of 112 thousand workers only 15 thousand were women, of whom 3.3 thousand were self-employed, mostly in Sub-Division 8.1 of medical and health services (3.1 thousand). There were 3.5 thousand ladies working as employees in Education and 1.5 thousand employees of the State Government.
- (j) Division 9 consists of those engaged in various kinds of services. Of the work force of 435 thousand, 75 thousand were women, of whom 30.5 thousand were self-employed. There were 23 thousand women in domestic services and 4.9 thousand independent workers in barber and beauty trade. In the laundry business there were 9.8 thousand independent women. We find 1.1 thousand women running independent eating houses. There were 1.4 thousand self-employed women in recreation services.

The statements appended herewith have been supplied by the Chief Inspector of Mines in India and the Chief Inspector of Factories, Bihar. They provide valuable data to show the trend of employment of women in the non-agricultural occupations since 1951.

AABLE !!. EMPLOYMENT OF FEMALES IN MINES.

the 1951. 1952. 1953. 1954. 1955. 1956 1 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Av	erage dai	ly number	of female	Average daily number of females employed				
Control of the cont	open w	orkings.					Surface.	,		
Hazaribagh 6.481 5,779 5,832 5,730 5,846 Manbhum 4,504 3,474 3,615 3,300 3,111 S. Parganas 15 14 21 22 34 Ranchi 98 96 59 74 17 Falamau		1954.	1955.	1956.	1951.	1952.	1953.	1954.	1955.	1956.
Manchum 4,504 3,474 3,615 3,300 5,846 Manchum 4,504 3,474 3,615 3,300 3,111 S. Parganas 15 14 21 22 34 Ranchi 98 96 59 74 17 Toral 11,098 9,363 9,827 9,126 9,008 g Toral 62 26 28 61 142 Toral 88 34 32 35 40 Toral 38 34 32 35 40 Manchum 38 34 32 35 40 Manchum 38 49 46 55 46 Singhbhum 972 786 848 557 645 Singhbhum 972 786 848 557 645 Singhbhum 972 786 848 557 645		9	L-	8	6	10	11	12	13	14
Manbhum 4,504 3,474 3,615 3,300 3,111 S. Parganas 15 14 21 22 34 Ranchi 98 96 59 74 17 Palamau Toral 11,098 9,363 9,827 9,126 9,008 6 Singhbhum 62 26 28 51 142		5,730	5.846	6,280	2.326	2,119	2,099	2,309	2,462	2,489
S. Parganas 15 14 21 22 34 Ranchi 98 96 59 74 17 Palamau Toral Singbhum Toral 62 26 28 51 142 Toral 62 26 66 51 142 Toral 38 34 32 35 40 Asheri Manbhum Monghyr Santhal Parganas 53 49 46 55 46 Singhbhum Ranchi <td>474</td> <td>3,300</td> <td>3,111</td> <td>3,189</td> <td>21,921</td> <td>20,884</td> <td>19,268</td> <td>18,802</td> <td>18.229</td> <td>17,351</td>	474	3,300	3,111	3,189	21,921	20,884	19,268	18,802	18.229	17,351
Ranchi 98 96 59 74 17 Palamau Toral 38 Singhbum 62 26 28 51 142 Toral 62 26 66 51 142 sy Banchi 38 34 32 35 40 ay Bhagalpur Monghyr Santhal Parganas 53 49 46 55 46 6 Singhbum Ranchi Ranchi		22	34	34	119	85	92	10	49	78
Palamau			17	35	249	353	318	302	440	418
Total Ranchi :	, L	:		25	20	12	36	47	90	
Singhbum 62 26 28 51 142 Total 38 34 32 51 142 Total 62 26 66 51 142 Total 38 34 32 35 40 sy., Bhagalpur 3 30 34 36 39 Manbhum	363	9,126	8,008	9,538	24,640	23,461	21,773	21,519	21,227	20,386
Singhbhum 62 26 28 51 142 Toral 62 26 66 51 142 sy. Ranchi 38 34 32 35 40 ay Bhagalpur 3 30 34 36 39 Manbhum Santhal Parganas 53 49 46 55 46 Singhbhum Ranchi	38			30.100	ere Suc	:	:	:	:	:
Total Total 38 34 32 35 40 ay Ranchi 38 34 32 35 40 ay Bhagalpur 38 34 32 35 40 Manbhum 3 30 34 36 39 Monghyr		A TOP WITH	142	88	26	52	10	:	92	32
ay Bhagalpur . 38 34 32 35 40 Anabhum . 3 30 34 36 39 Monghyr		19	142	88	56	52	10	:	92	32
Torat 38 34 32 35 40 Bhagalpur Manbhum Monghyr Santhal Parganas 53 49 46 55 46 Singhbhum 972 786 848 557 645 Ranchi			40	56	26	19	12	28	22	30
Bhagalpur .3 30 34 36 39 Manbhum Santhal Parganas 53 49 46 55 46 Singhblum 972 786 848 557 645 Ranchi			40	26	26	19	12	28	22	30
53 49 46 55 46 972 786 848 557 645			39	18	:	4	12	ro	ŭ	61
53 49 46 55 46 972 786 848 557 645	:	:	;	:	:	:	:	:	:	:
53 49 46 55 46 972 786 848 557 645 13	·: :	:	:	:	:	:	:	:	:	:
972 786 848 557 645			46	43	α ο	6	9	82	76	62
			645	684	385	366	388	280	377	392
	:	13	:	1	:	:	1	14	Ö	61
730		661	730	746	393	379	407	381	463	458

39 Lab.—62

TABLE 77—contd.

EMPLOYMENT OF FEMALES IN MINES—contd.

Name of Institute of the minimate of districts. Name of Mastricts. Institute of the minimate of the m							Ave	Average daily number of females employed.	number of f	emales em	ployed.				
Total district to the control of the	Nemocf	Mome of th	9			Open wo	rkings.					Surface			
1	mineral.	district.	P	1951.	1952.	1953.	1954.	1955.	1956.	1951.	1952.	1953.	1954.	1955.	1956.
ite Singhbhum Singhbhum 63 45 50 5 10 5 118 162 192 58 Ite Monghyr 61 63 45 50 5 10 5 118 162 192 58 Singhbhum 61 63 45 50 201 188 197 5 231 10 Y Hazaribagh 8 21 10 8 12 18 16 10 5 231 10 Y Hazaribagh 81 14 5 11 23 15 16 10 94 9 TOTAL 61 62 45 56 60 51 36 40 24 1 TOTAL 61 62 45 56 60 51	1	67		က	4	5	9	7	8	6	10	11	12	13	14
tte Monghyr	Chromite		:	63	45	20	າວ	10	າລ	118	162	192	8¢	28	70
te Monghyr		TOTAL	:	63	45	20	10	10	13	118	162	192	58	28	70
Yoral Hazaribagh 1. 1. 1. 201 1. 1. 1. 201 1. 1. 201 1.	Columbite		:	:	:	:				:	:	:	:	:	:
Total			:	:	:	:		201		188	197	ro	231	10	192
Manbhum 8 21 10 8 12 18 4 2 3 Manbhum 18 14 5 11 23 15 16 10 Palamau 25 27 28 37 25 18 16 40 21 1 Totat 51 62 45 56 60 51 36 32 40 24 Hazaribagh 22 <td></td> <td>TOTAL</td> <td>:</td> <td>:</td> <td>:</td> <td>1</td> <td>21L</td> <td></td> <td></td> <td>188</td> <td>197</td> <td>9</td> <td>231</td> <td>10</td> <td>192</td>		TOTAL	:	:	:	1	21L			188	197	9	231	10	192
Manbhum 18 14 5 11 23 15 16 10 Palamau 25 27 28 37 25 18 16 20 40 21 1 Torat 51 62 45 56 60 51 36 32 40 24 1 Hazaribagh			:	œ	21	10	88	12	18	4	63	:	က	:	61
Palamau 25 27 28 37 25 18 16 20 40 21 1 TOTAL 51 62 45 56 60 51 36 32 40 24 1 Hazaribagh		Manbhum	:	18	14	10	11	23	15	16	10	:	•	:	:
Total Total Singhbum 1. Singhbhum 2. Singhbh		Palamau	:	25	27	28	37	25	18	16	20	40	21	13	Ξ
Hazaribagh 4 3		TOTAL	:	51	62	45	56	09	51	36	32	40	24	, 13	13
Gaya		Hazaribagh	;	:	:	:	22	:	:	:	:	:	:	6	က
Total 26 3		Gaya	:	:	:		4	က	:	:	:	:	:	1	:
Singhbhum 13 7 56 1 1 1 1		TOTAL	: '	:			26	8		:		:		10	3
			:	:	:	:	13	٢	26	:	:	1	:	:	:
		TOTAL			:		13	7	56	:	:	1	:	:	:

7	7	6	1,219	:	1,228	296	:	296	17	41	53	12	9	129	:	86	86	:	71	166	:	:	237
:	:		1,145	:	1,145	245	:	245	က	42	102	:	7	154	:	74	74	:	99	156	:	:	222
ţ	:	:	1,374	:	1,374	41	:	41	:	32	65	:	24	121	:	75	75	:	87	189	:	:	276
:	:	:	1,737	:	1,737	31	•	31	9	15	51	:	28	100	:	164	164	:	157	369	:	9	532
:	:	:	1,302	:	1,302	93	:	93	:	12	43	:	34	125	:	200	200	:	386	712	:	51	1,149
:	:	:	1,128	:	1,128	58	:	58	:	12	151		41	204	:	126	126		293	863	:	24	1,187
:	:	18	2,923	:	2,941	328	:	328	15	268	766	5	518	1,572	:	323	323	:	:	12	:	:	12
:		:	3,022	:	3,022	860	;	860	:	265	759		555	1,579	:	363	363	:	:	42	:	•	42
:	:	:	3,468	:	3,468	625	•	625	:	236	721		543	1,500	:	168	166	:	:	16	:	:	16
:	:	:	3,568	:	3,568	759	•	759	6	245	763	:	413	1,430	13	376	383	:	4	30	:	:	34
:	٠	30	2,807	:	2,837	393	:	393	6	211	803	:	570	1,593	:	495	495	:	20	:	:	:	ō.
:		:	2,446	:	2,446	409	:	409	1-	229	1,166	:	069	2,092	:	211	211	:	4	74	11	:	88
:	:	:	:	:	: 1	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	
Ranchi	Total	Palaman	Singhbhum	Hazaribagh	TOTAL	Singhbhum.	Manbhum	TOTAL	Hazaribagh	Ranchi	Shahabad	Palamau	Singhbhum	TOTAL	Ranchi	Singhbhum	Total	Bhagalpur	Gaya	Hazaribagh	Manbhum	Monghyr	TOTAL
Laterite		Iron Ore				Kynite §			Lime Stone						Manganese			Mica					

TABLE 77—contd.

EMPLOYMENT OF FEMALES IN MINES—contd.

		•				A	verage da	Average daily number of females employed	of female	s employed	•				1
;	,		}			Open	Open workings.					Surface.			
Name of mineral.	of	Name of the District.	· eų	1951.	1952.	1953.	1954.	1955.	1956.	1951.	1952.	1953.	1954.	1955.	1956.
1		2		က	4	5	9	7	8	6	10	11	12	13	14
Quartz	:	Singhbhum	:		:	:	:	:	43	:	:	:	:	:	:
		TOTAL			:	:	:	:	43	:		:	:	:	:
Silica	:	Manbhum	:	:	:	:	:	:	:	:	:	:	:	:	:
		Santhal Parganas	ganas	:	:	:	:	1	:		:	:	:	:	:
		Singhbhum	:	26	30	29	29	23	22	14	20	18	19	18	19
		TOTAL	' :	26	30	29	29	1 223 ==	25	11.00.13	20	18	19	18	19
Slate	:	Monghyr	:	17	33	6	耳针		; []]	પી - ભાગ	:	:	:	:	:
		Singhbhum	:	:	:	:	:	61		3	:	:	:	:	Ð
		TOTAL	1:	17	33	6	11	67	:	:	:	:	:	:	5
Steatite	:	Hazaribagh	:	24	31	52	09	54	161	:	:	=	14	17	:
		Singhbhum	:	38	31	23	27	37	44	7	10	œ	œ	10	œ
		TOTAL	:	62	62	75	87	91	205	7	10	19	22	27	8
Stone	:	Gaya	:	1	13	15	31	27	38	36	58	4	:	:	:
		Monghyr	:	39	:	:	7	7	:	*:	:	:	:	:	7
		Santhal Parganas	ganas	13	9	17	52	15	70	26	73	241	156	159	410
		Shahabad	:	38	43	63	61	68	98	:	:	14	:	က	:
•		Singhbhum	:	175	150	100	185	:	:	:	:	:	:	:	:
		TOTAL	:	266	212	195	336	138	129	62	101	259	156	162	417
			•	-											

Total Tota	Tin Ore	Ranchi	:	:	ø	9	Θ 1	Г	1	:	:	:	:	:	:
Hay . Singthbrum		Total	:		8	9	2							:	
Total 270 325 345 85 95 95 95 95 95 95 95 95 95 95 95 95 95	White Clay.	. Singhbhum	:	:	:	:	270	325	345	:	:	:	85	95	102
9 Palamau 17 41 41 20 Manbhum 2 1 18 41 41		Total	' :	:			270	325	345				85	95	102
Manbhum 2 1 1		. Palamau	:	:	:	:	17	41	14	:	:	:	: 	20	25
Total 2 1 1 18 41 41 20 Singhbhum 47 40 40 8 3 3 40 Total 47 40 40 8 3 3 40 GRAND TOTAL 17,958 16,065 17,182 16,541 16,728 16,510 28,243 27,302 25,303 24,413 24,051 23,7		Manbhum	:	:	67	1	र्ड यहा			:	:	:	•	:	•
Singhbhum 47 40 40 8 3 40 Total 47 40 40 8 3 40 GRAND TOTAL 17,958 16,065 17,182 16,541 16,728 16,510 28,243 27,302 25,303 24,413 24,051 23,7		Total	:		2	1	18	14-14	41		:	:		20	25
47 40 40 8 3 3 40 17,958 16,065 17,182 16,541 16,728 16,510 28,243 27,302 25,303 24,413 24,051			:	•	;	47	40	40	8			. %	3	40	40
17,958 16,065 17,182 16,541 16,728 16,510 28,243 27,302 25,303 24,413 24,051		Total	:		:	47	40	40	ဆ			3	3	40	40
	9	RAND TOTAL		17,958	16,065	17,182	16,541		16,510	28,243	27,302	25,303	24,413	24,051	23,795

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TABLE 78.

AVERAGE TOTAL AND AVERAGE FEMALE EMPLOYMENT IN FACTORIES.

	Total nun	iber of wor (averag			ber of fema s(average).	ale	worker	s as p	f female ercentage loyment.
	1951.	1956.	1957.	1951.	1956.	1957.	1951.	1956.	1957.
1		3	4	5	6	7	8	9	10
Factories U/S 2(m)(i).	1,49,008	1,41,585	1,46,186	9,586	7,606	7,849	6,85	5,37	5.37
Factories U/S $2(m)(ii)$.	46,930	25,529	24,786	3,775	1.767	1,834	8.31	6.92	7.60
Total	1,86,938	1,67,114	1,70,972	13,331	9,373	9,733	7.15	5. 1	5.69



TABLE 79.

AVERAGE EMPLOYMENT [IN RESPECT OF FACTORIES AS DEFINED IN SECTION 2 (m) OF THE FACTORIES ACT, 1948].

Industry.		no. of wo			o. of femal (Average		worke		of female centage of syment.
	1951.	1956.	1957.	1951.	1956.	1957.	1951.	1956.	1957.
I	2	3	4	5	6	7	8	9	10
In f	actories	registered	under se	ction 2	m(i).				
I. GOVERNMENT AND LOCAL FUND FACTORIES.									
202. Manufacture of dairy products	9.0	12	••	••		6:0	••	••	• •
209. (a) Manufacture of edible oils (other than hydrogenated oils).	50	**	••	••	••	\$7.4	••	••	••
231. (a) Cotton Mills	200	202	277	••	1	1		.50	.36
231. (c) Silk Mills	••	74	118		••]		••	.85
231. (d) Woollen Mills	598	706	642			••	••	••	
239. (c) Others	20	A		£3		••	••	••	••
43. (d) Clothing	535	757	6 95			••	••	••	
250. (c) Others (treatment of wooden poles).	••		32	j	••	••	••	••	••
660. (a) Manufacture of furniture and fixtures (wooden).	142				••	••	••	••	••
280. (a) Letter-presses, Lithographic printing and Book binding.	927	1,077	935	Ď	••	• •	••	••	••
311. (a) Artificial manures	1,834	3,820	4,053		250	312	••	6.54	7.70
311. (b) Heavy Chemicals			40	• • •			• •	••	••
319. (a) Fine and Pharmaceutical Chemicals.	••	126	129	••	••	••	••	••	• •
322. Coke Ovens	267	196	198	54	40	38	20.22	20.41	19.19
350. (b) Cutlery, Locks, etc	••	48	40	••	1	••	••	2.08	••
360. (f) General and Jobbing Engineering	623	2,758	2,787		14	16	••	.51	.57
81. (a) Ship-huilding and repairing	257	436	571		••	••	• •	••	••
82. (a) Railway Workshops	13,582	13,282	13,054	11	2	••	.08	.02	••
884. (a) Motor Vehicles		547	623		••	••	••	••	••
399. (1) Others		108	85		••			••	••
511. Electric light and Power	1,101	2,598	2,829	1	I	7	.09	.04	.25
21. Water Supply Stations	106	207	211	••	8	20	• •	3.86	9.48
522. Sanitary Services (pumping and Sewage).	• •	24	24	••	••	••	••	••	••
344. (a) Laundry and Laundry Services	••	20	21		••	••	••	••	••
TOTAL OF G.L.F. FACTORIES	20,242	26,998	27,364	66	817	395	.03	•12	·14

 $\begin{tabular}{ll} \textbf{TABLE 79--contd.} \\ \textbf{AVERAGE EMPLOYMENT [IN RESPECT OF FACTORIES AS DEFINED IN SECTION $2(m)$ OF THE FACTORIES ACT, $1948]--contd.} \\ \end{tabular}$

Industry.		Total nur . (2	nber of we Average).	orkors		umber of ers (Aver		worke	yment o rs as perc al employ	entago
		1951.	1956.	1957.	1951.	1956.	1957.	.1951,	1956.	1957.
1		2	3	4	5	6	7	8	9	10
II. OTHER FACTORIES.										
010. (a) Cotton ginning and hailing		. 20	8	••	• •	••				
010. (b) Jute Presses	••	75	95	94						••
202. Manufacture of dairy products	••	49	70	76	1		••	2.04	• •	
205. (a) Flour Mills	••	234	371	402	9	12	32	3.84	3. 23	7,98
205. (b) Rice Mills		4,777	5,365	5,142	237	291	332	4.96	5.42	6.45
205. (c) Dal Mills		370	194	167_	25	8	8	6.75	4.12	4.78
206. Manufacture of Bakery Products		30	129	120	B	7		• •	5.42	••
207. (a)(i) Vacuum Pan	••	22,405	21,494	21,552			••	••		
(ii) Open Pan	••	*	234	273			•1•			
(b) Gur (open pan)	••	102	120	150				••	••	
208. Manufacture of sugar confection	ary.	360	124	134	à	٠.	••			• •
cocoa and chocolato. 209. (a) Manufacture of edible oils (o than hydrogenated oil).	ther	2,416	1,074	1,064	96	43	37	3.97	4.10	3.47
(b) Hydrogenated oil industry		105	209	249			••	••	• •	••
(c) Tea Factorios	••	602	46	44	345	6	6	57.38	13.04†	13.64†
(d) Cold Storage	••	278	411	442	83	81	69	29.85	19.70	15.61
211. Distilling, rectifying and blending	ng of	326	378	371		••	••	••	••	••
spirits. 220. (c) Cigarettes		2,949	2,016	2,013	53	42	34	1.79	2.08	1.68
(f) Others		645	47	63	••	••	••		••	••
231. (a) Cottons Mills		1,148	660	908		••	•••		••	••
(b) Jute Mills		6,403	6,014	5,916	313	190	175	4.88	3.15	2.95
(c) Silk Mills		307	465	227				••	••	
232. Knitting Mills		225	73	63	1	••	••	.44		
239. (c) Others		• •	63	62	• •	9	9	• •	14.28	14.51
241. Manufacture of Boets and S	hoes	1,023	634	667	• •	• •			• •	••
(except rubber footwear). 250. (a) Saw Mills		516	513	625		5			.97	••
(b) Manufacture of Plywood			30	28		• •			••	٠,
										enternut / mitte.

^{*} included in (i) above. † This decrease is due to transfer of tea factories to West Bengal.

TABLE 79-contd. AVERAGE EMPLOYMENT [IN RESPECT OF FACTORIES AS DEFINED IN SECTION 2(m) OF THE FACTORIES ACT, 1948].—contd.

Industry.	Total nur	nber of w (Averag			mber of rkers (A		work		of female reentage of yment.
	1951.	1956.	1957.	1951.	1956.	1957.	1951.	1956.	1957.
1	2	3	4	5	6	7	8	9	10
(c) Joinery and General Wood-working	65	170	59	••					
(e) Others	24	15	280	12			50		
260. (a) Wooden	••	204	225			1			.44
271. (a) Pulp	727	1,054	1,307					• •	
(b) Paper	57 0	1,687	1,790						
(c) Paper Board and Straw Board	12		35						
271. (d) Others	••	90	57	.,					
280. (a) Letter Presses, Lithographic	2,137	2,239	2,192	2	2	2	.09	.08	.09
Printing and Book-binding. 291. Tanneries and Leather Finishing	341	293	287	2,					
311. (b) Heavy Chemicals	472	344	368	37	5	12	7.33	1.45	3.27
311. (f) Others	46			7	••				
319. (a) Fine and Pharmaccutical Chemical	400	317	335	7	••			.,	
(b) Lac (including shellac)	2,105	944	753	524	264	195	24.89	28.96	25.89(a)
(c) Matches	20	52	407		2	71		3.84	17.44
(d) Paints, colours and Varnishes		126	88		• •	••	••		
(e) Soap	98	-8	8					• •	
321. (d) Petroleum Pumping, filling and storage.	••	82	93		.,	••	••	••	
322. Coke Ovens	1,712	1,371	1,397	230	202	209	13.43	14.73	14.96
329. Manufacture of miscellaneous products	529	482	464	38	21	21	7.18	4.35	4.52
of petrolcum and coal. 331. (a) Bricks and tiles	6,537	6,351	6,860	1,769	1,680	1,687	27.06	26.45	$\boldsymbol{26.92}$
(b) Others		55	55	••	15	11		27.09	20.00
332. Manufacture of Glass and glass products (excluding optical lenses).	1,549	1,181	1,968	118	49	53	7.61	4.14	2.69
333. Manufacture of pottery, china and carthenware.	••	49	59	••	2	3	• •	4.03	5.08
334. Manufacture of Cement	4.125	4,849	4,614	595	308	316	14.42	6.35	6.84
339. (a) Stone dressing and crushing	1,325	597	519	594	120	156	44.83	20,10	30.05(b)
(b) Asbestos Products	172	167	201		••	•			
(c) (i) Mica Factories	173	17	18	1				• •	
(ii) Micanite	••		29						

⁽a) Decrease in actual number is mainly due to transfer of factories to West Bengal.(b) Decrease is due to removal of factories. The factories have gone under Mines Act.

⁶⁹ Lab.-63.

		Total numl (A	ber of wor verage).	rkers		mber of i		workers	nent of As percer employn	itage of
	Industry.	1951.	1956.	1957.	1951.	1956.	1957.	1951.	1956.	1957.
	I	2	3	4	5	6	7	8	9	10
(d)	Others—(i) Manufacture of Cemen concrete spun pipes.	t 175	457	637	10	• •	5	5.72		.78
341. (a)	Manufacture of Iron and Steel	25,676	22,520	22,301	2.325	1,819	1,820	9.05	8.07	8.16
(<i>b</i>)	Rolling into basic forms	4,945	5,116	5,561	445	439	548	8.99	8.58	9.85
(c)	Tube making and Wire drawing	1,857	2,004	1,956	283	263	250	15.24	13.12	12.78
(d)	Rough Castings	2,354	2,614	2,572	576	760	707	24.46	29.07	27.48
312. (a)	Smolting and Refining of Metals	2,166	2,114	2,148	246	223	203	11.35	10.54	9,45
350. (a)	Metal Containers	202	142	136	4			1.98		
(b)	Cutlery, Locks, etc	159			第	• •			• •	
(c)) Bolts, nuts, nails, springs, chairs	, 73	79	108	7			••		
(<i>g</i>	etc. ') Safes and Vaults	86	20	5					••	
(A	i) Others	290	3,400	3,725		61	63		1.79	1.69
360. (a	Agricultural implement .	. 892	The state of the s	No. 5 1	74	• •		8.29		• •
(f	') General and Jobbing Engineering	7,180	2,870	3,062	252	91	96	3.5	3.17	3.1
(g) Others		4,614	5,791		126	166	. •	2.73	2.9
370. (c	e) Electric Lamps (other than Glass (Bulb making).	33	100	186	••	••	3	• •	• •	1.0
(,	f) Radio and Phonographs .	. 376	196	471	. 20			5.03		
(g) Insulated wires and Cables	1,090	1,655	1,711	96	83	81	8.08	4.09	4.0
(h) General and Jobbing Engineering	ng 78	3 142	12	7.					
381. (a) Ship-building and Repairing	257	7 158	3 15	2 .					
382. ((a) Railway Workshops	41	54	. 5	3.					
384.	(a) Motor Vehicles	1,007	713	75	Ω	5 .		04	,	
385.	Manufacture of Bieyeles	258	84					•		
386.	(b) Repair of Aeroplanes	75	9]	0 .					
393.	Manufacture of Watches and Clock	s 60	0	•		3 .		. 5.00		
399	(f) Manufacture of Ice	172	2 360	3 40	0 .	. 4	L 8	3	1.01	2.
	(h) Plastic articles	••		. 1	0 .					
	(k) Others		. 1	0	10 .	. . ,				

TABLE 79—oontd. AVERAGE EMPLOYMENT [IN RESPECT OF FACTORIES AS DEFINED IN SECTION 2(m) OF THE FACTORIES ACT, 1948].—contd

Industry.	Total num	ber work	ers		umber of ers (Avera		workers	yment of as percen employm	tage of
	1951.	1956.	1957.	1951.	1956.	1957.	1951.	1956.	1957.
1	2	3	4	5	6	7	8	9	10
511. Electric Light and power	1,486	1,175	1,211	39	29	38	2.01	2.04	3.01
512. Gas manufacture and distribution		75	87						
521. Water-supply Stations	159	72	69	44	9	9	27.07	12.50	13.04
522. Sanitary services (Pumping and sewag	c) 115	117	114	15	18	18	13.00	15.04	15.07
842. Restaurant and Cafes, etc	••	104	103					• •	
811. (b) Job Dyeing and Dry cleaning, etc.		28	29		• •				
TOTAL OF OTHER FACTORIES		1,14,587	1,18,822	9,520	7,289	6,454	7.95	6.36	6.27
TOTAL—G.L.F. AND OTHER FACTORIES				9,586	7,606	7,849	6.85	5.37	5.37
		JE 8 (2)	102 702	1 3	0 (<u></u>			
. GOVERNMENT AND LOCAL FUND FACTORIE		tories reg	istered un	ider secti	on z mi	v).			
209. (a) Manufacture of ediblo oils (other than hydrogenated oils).	·	32	32			••	••	••	••
231. (a) Cotton Mills		354	352		• •			• •	• •
239. (c) Others	. 50	27	29		••		••	••	• •
280. (c) Letter-press, lithographic printing	g	26	25					••	••
and book-binding. 360. (f) General and Jobbing Engineering		10.00	80		••		••		• •
384. (a) Motor Vehicles		54	38 38						
To al of G. L. F. Factories	50	493	556						• •
II. OTHER FACTORIES.						,,,,,,			
010. (b) Jute Presses	. 15	540	545	••		•		• •	• •
:202. Manufacture of dairy products .	. 10	••			••	•			••
206. Manufacture of bakery products .	. 40	63	55						
220. (a) Bidi	. 22,356	9,920	8,742	19	11	11	.08	.11	.13
231. (a) Cotton Mills		20	42	••					
(c) Silk Mills		12	12						
239. (c) Others	41								• •
241. Manufacture of Boots and Sho	es	18	18						
(Except rubber footwear). 241. Manufacture of made-up textile good except wearing apparel.	ds	40	39	••	3 8	3	7	95.00	94.87
250. (e) Others		. 12	:				•		
260. (a) Wooden	50) 4	14						

TABLE 79-concld. AVERAGE EMPLOYMENT IN [RESPECT OF FACTORIES AS DEFINED IN SECTION 2(m) OF THE FACTORIES ACT, 1948].—concld.

	Industry.	Total nur	nber of w Average).			number c rkers (Av		worke	yment o ors as per ul employ	centage of
	-	1951.	1956.	1957.	1951.	1956.	1957.	1951.	1956.	1957.
	1	2	3	4	5	6	7	8	9	10
280.	. (a) Letter Presses, Lithographic, Printing and Book-binding.	••	104	91	••				••	
291.	. Tanneries and Leather fluishing	••	6	7			. •	••	• •	
311.	. (f) Others	25	8	6					••	
319.	. (b) Lac (including Shellac)	5,699	1,916	1,769	796	215	217	13.97	11,22	12.27(a)
	(d) Paints, Colours and Varnishes	151			• •					
	(e) Soap	40	90	18	• •		••		••	
	(f) Others	5	••		1	••	• •	20.00		••
321.	(d) Petroleum pumping, filling and storage.	224	49	39 -	9 £3.	••	••	4.02	••	••
331.	. (a) Bricks and Tiles	3 00	114	131			2	••		1.53
	(b) Others	9			2		• •	22.22	• •	
333.	. Manufacture of pottery, china and earthenware.	••	20	31		••	12	• •	• •	38.71
339.	. (a) Stone dressing and crushing	719			78			10.85	*	*
	(c) (i) Mica factories	16,488	11,610	12,104	2,888	1,503	1,604	17.03	12.95	13.25
	(d) (i) Manufacture of Cement concrete (Spun) Pipes. (ii) Others	••	26 8	31	1		••	• •	••	**
350.	(a) Metal containers and Steel trunks	80	127	89	2	••	••	2.5	• •	•••
	. (g) Safes and Vaults	••	17	25		••	• •		• •	••
0001	(h) Others	52					••	• •	• •	••
260	. (f) General Jobbing Engineering	4	6	 53	••	••		••	• •	1 00
3 00.	(a) O(1, a)			11	••	••	1	• •	••	1.89
901	() 31 - (- · · X7 L ! - 1 · · ·	••	 		••	••	••	••	••	• •
	•	 118	21	24	• •	••	• •	••	••	• •
5 00.	(c) Button Making (k) Wrapping, parking & filling	$\begin{array}{c} 416 \\ 224 \end{array}$	240	221	9	• •	• •	• •	• •	• • • • • • • • • • • • • • • • • • • •
842.	Restaurant, Cafes, etc	36	27	27	••					
844.	. (b) Job dyeing, dry cloaning, etc	120	18	18	60	• •	• •	50.00	• •	
	TOTAL OF OTHER FACTORIES	46,880	25,036	24,230	3,775	1,767	1,894	8.05	7.06	7.78
To	TAL-G.L.F. AND OTHER FACTORIES	46,930	25,529	24,786	3,775	1,767	1.884	8.04	6,92	7.60

⁽a) Decrease is mainly due to transfer of factories to West Bengal. *Decrease is due to removal of factories. Factories have gone under Mines Λ et.

3. Data on female employment from the case studies of the Rurul Unemployment Survey.—We have calculated the situation regarding the employment of women according to the data in the case studies out of the sample surveys of rural unemployment. We find the data indicating a much larger percentage of female employment than in the Census tables, specially in Patna and Chotanagpur Divisions, though a tabulation of all the samples may give us a little different r sults. The following percentages of the employment out of the total employable female population have been found.

Division.				Percentage at work.	Percentage seeking employment.
Patna				60.3 2	0.89
Tirhut	• •	• •	• •	38.88	4.02
Bhagalpur	• •	• •		56.67	3.04
Chotanagpur	• •	• •		84.69	7.54

4. Employment trends in the non-agricultural sector in India as a whole since 1901.—A study of the employment trend of women in 1901—51 was conducted jointly by the Labour Bureau of the Government of India and the Labour and Employment Division of the Planning Commission and the results were available in 1958.

The study showed that during these 50 years, the employment of women had increased in coal mining, tobacco, iron and steel and non-ferrous metal industries, in the manufacture of transport equipment, bricks, tiles and other structural materials, clay products, furniture and fixtures, paper and paper products, printing and allied industries, educational services, hotels, restaurants, tea houses and legal profession. But during the present decade, a decline in the employment of women is found in some of them. The employment of women is found to have decreased in miscellaneous food industries, grains and pulses, non-metallic mineral products, retail trade in fuel, sanitary works and services during 1901—1951. In recent years since 1950 up to 1956, employment of women in wood and furniture industries, paper and paper products, textiles and basic metal industries has been decreasing. The most marked decrease has been in the jute industry from 37,000 in 1950 to 21,000 in 1956. In the mining industries, there was a fall in mica and coal mining but an increase in manganese and iron-ore mining. There was a general decline in the number of adult employees in plantations and female employment, too, fell proportionately.

These findings relate to the whole of India and only in certain cases they might apply to Bihar. But the broad trend is in line with what our Chief Inspector of Factories has pointed out.

- 5. General trend of employment in the organised industries in Bihar.—We are reproducing below verbatim a note sent to us by the Chief Inspector of Factories, Bihar analysing the trend and causes of decline in the employment of women in his letter no. 1874 of 14th April 1959.
 - "In continuation to this office letter no. 3956, dated the 14th July 1958, I would like to make the following observations relating to the cause of decline in the employment of females in registered factories of this State:—
 - "1. In this State there is abundance of man-power and the employers have no difficulty in obtaining the services of either a male or a female worker.

- As there is no dearth of male workers, the employers are reluctant to employ female workers by giving preference to them over male workers due to the following reasons:—
- (1) Under the Indian Constitution payment of equal wage has been guaranteed to a female worker for similar work. Under the Minimum Wages Act, the minimum wages have been fixed for certain industries and the rate of wages for female workers has been fixed at par with male workers. Consequently, as the employers have to pay same wages to females, they now prefer to employ males.
- (2) Under the provisions of the Factories Act and Maternity Benefit Act a factory employing a certain number of female workers has to provide a building for ereche with all the amenities like free food to children, health visitor, bedding and equipments and attendant. There is a tendency, therefore, to reduce the number of females to below the prescribed limit.
- (3) Under the provision of the Maternity Benefit Act every female worker is entitled to leave with wages for certain number of weeks at the time of delivering a child.
- Also, an average female worker of young age-group becomes pregnant every two or three years. While these females go on maternity leave the working of the plant is dislocated as a substitute has got to be found for a short duration.
- To get rid of this worry and of this financial liability, the employers are gradually developing a psychological bias against the employment of females.
- (4) Under the provisions of the Factories Act, there is a restriction of employment of female workers between 7 P.M. and 6 A.M. Employment of male workers offers greater flexibility in working.
- (5) By employing female workers the management have to make separate arrangements for latrines, urinals, wash places, canteen, rest shelter, etc. In addition to this the managements have to take special care for maintaining discipline in the factory, when females are employed.
- I me to the reasons given above some of the employers are deliberately avoiding employment of females, but these factors are also resulting in creating a general psychological bias against employment of females, which is showing its effect gradually."
- "2. A survey was, however, conducted for ascertaining the cause of the decline and the following points have come up:—
 - In majority of the factories of this State, female workers are employed in manual work. In industries like mica and rice mills they are employed on certain specific jobs. Except for Chotanagpur Division in other areas male workers have replaced female workers to some extent in manual operations. In Chotanagpur Division there has not been much change as the local male workers of this area have a prejudice against carrying head loads due to local customs and conventions. Therefore, in this area the managements have no option but to employ female workers for such work as carrying head loads.
 - In mica Industry the decline has been due to fall in order of Book Form splittings. Earlier the Book Form splittings contributed nearly 75 per cent to 80 per cent of the total mica exported from this country.

During the last few years there has been a slump in mica trade. Moreover these days Book Form splittings contribute only 50 per cent of the total mica exported from this country. This has partly contributed to the decline in employment of females in mica industry.

Moreover in order to avoid commitment under the various laws, the employers have introduced the system of home work more widely. Under this system the workers take raw mica from factory and process the same at home with the aid of his family members. Some of the females who used to work in factories, now work at home due to the introduction of this system and this is reflected in decline in employment of females in mica industry, though this is not unemployment in the true sense.

In rice mills the decline has been due to slump in this business as well as due to the natural reluctance of employers to employ females generally."

- "3. This analysis related only to factories and my personal feeling is that though from the figures of annual returns submitted by factories it appears that there has been a decline in employment of females the total employment of females in this State in all employments is on increase instead of decrease. Hundreds of projects of road and building construction as well as stone-breaking establishments are coming up daily. In all such establishments females are employed in large numbers. Figures relating to these employments are not available but in my opinion if these figures are collected for a number of years, I am extremely doubtful if the total volume of employment of females would show any decline at all."
- "4. Another point which is worth consideration is, how far the employment of females helps in solving the unemployment problem. In this country and specially in this State the figure of unemployment is quite heavy. Consequently, as far as the question of total unemployment is concerned, in my opinion, it makes no difference if males replace the females. This question would come in the fore-front only when we reach the stage of no or nearly unemployment."
- 6. Broad recommendation on the policy of employment of women.—The Committee places before the Government the following facts concerning the employment of women which are to shape the policy of the State on this subject.
 - (a) The load of dependency on the working population is as much due to the large percentage of the employable female labour force not being economically active as to the high percentage of infants and children in the population.
 - (b) This dependency of women is much higher in the urban areas than in the rural areas as revealed both by Census statistics as well as by our Urban Unemployment Survey of 1954.
 - (c) There is a marked tendency for a shift from the stagnant pool of the voluntarily unemployed women to the labour market as a result of the growth of education and the multiplication of wants.

Although one school of thought, as represented in the concluding remark of the Chief Inspector of Factories, holds that there need be no anxiety about the employment of women so long as there is a heavy overall unemployment, there are strong reasons for devoting special attention to the employment of women in specific spheres

and for specific objectives even though there may not be equally strong grounds for advocating the employment of women in competition with men in some of the organised industries.

- 7. General reasons for stimulating the gainful occupation of women.—We have noted the large percentage of dependency in the total population on account of the larger number of children in India than in the advanced countries with a lower birth-rate. Secondly, on account of technological backwardness, the productivity per work unit is low. It is for these reasons in general that we advocate a larger volume of employment of women. An examination of the trend of employment of women shows that all over the world women find more scope for employment in agriculture than in the non-agricultural sector. One of the tables in the report of the Ninth Round of the N.S.S. gives certain valuable comparative figures bearing on the subject. It shows that between 1930 and 1950 the percentage of working women (to the total female population) rose from 17.7 to 21.5. In the U.K., it rose between 1931 and 1951 from 26.9 to 27.2; in Italy between 1930 and 1950 from 18.6 to 24.9. In this table the figure for India in 1953-54 is given as 29.7 per cent in the aggregate and 32.3 in rural and only 15.2 in the urban sector. This last figure is of special interest to us because we have been emphasising at various places the need of providing spheres of employment and home employment for women in urban areas.
- 8. The modernisation of the economy is taking away a considerable volume of the traditional work of the women on the farm and in the urban homes and creating unemployment.—While comparatively the percentage of women occupied gainfully or as earning dependants is higher in the agricultural population, both rural and urban, than in the non-agricultural pouplation, the modernisation of the economy is taking away quite a lot of the normal work of women which accounted for veiled employment owing to the establishment of small flour-grinding, rice-hulling, dal-splitting mechanised units even in the villages, the growth in the use of ready-made garments, etc. Hence, we recommend that the situation of the employment of women should be watched ceaselessly and efforts made to create suitable avenues for the employment of women in the rural and urban areas. We are making some specific recommendation on the subject in the succeeding sections.
- 9. Greater need of measures of relief employment for women seeking jobs for humanitarian reasons.—Apart from the measures for drawing more women into gainful occupations, we recommend special consideration for the relief of women seeking jobs but unemployed since unemployed women are subjected to greater distress and hardships than men and are less able to seek out jobs and avenues than men. In most cases the women who come into the labour market do so more on account of necessity than as a matter of choice.

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- 10. The khadi and rural industries organisations and their workers have already acquired the right approach and developed methods for dealing with the problem of employment of women.—We recommend that the State Khadi and Village Industries Board as well as the Khadi and Gramodyog Sangh, which have already developed the technique, method and approach as well as appropriate activities eminently suitable for dealing with the special problems of employment of women may be requested to give due emphasis to the need of expanding the scope for gainful occupation of women both in rural and urban areas.
- 11. Difference in the economic conditions of different towns would require different patterns of employment measures for women in different towns.—We have seen that on account of the want of appropriate avenues for subsidiary activities for the non-agricultural and urban population as compared to the agricultural population, the percentage of dependants among women in the former category of women is much

larger. Our Urban Unemployment Survey has also revealed a larger volume of unemployment among urban women. For these reasons, it is necessary to examine the particular economic features of each town and work out appropriate measures for creating avenues of employment for working class as well as middle class women. There are marked difference in the conditions not only between the ordinary civil station towns, commercial towns, mining settlements and industrial towns but also in between towns in each category. For these reasons, the standard pattern of the rural economy which has enabled the planning of village industries of a fairly standardised design producing goods mainly for local consumption is rather possible for the urban areas only to a limited extent. However, there is likely to be scope for ancillary employments in homes on contract or for wage work.

We recommend that Labour Officers, Universities, Colleges, other social service organisations, the State Khadi and Village Industries Board and the Khadi and Gramodyog Sangh be requested to conduct specific investigations into the problem of employment of women and into the kinds of economic activities for women within their homes and in small co-operative establishments which may be provided according to the economic environment in the growing industrial areas and in the non-industrial towns. We understand that certain types of home work have been found quite suitable for the women of the workers' families in Jamshedpur.

- 12. The desirability of planning the establishment of light complementary industries providing wage work, home contract work or subsidiary family crafts in industrial towns .-There is now a distinct and clear tendency for the working class population to settle down in mining and industrial areas and a resident working class and middle class population has been growing up in them. We know that neither productivity nor wage rate is high enough in India for a reasonable standard of living and our Urban Survey has given us the pattern of income level groups showing how deficient the income of most of the families is. Thus apart from the objective of relief employment, the provision of employment for women of both wage and salary earning families is expected to ease the continuous pressure for wage increases which is justified according to the specifically defined criterion of a living wage even though it may not be justified fully on grounds of marginal productivity. The planning of industrial location in the West has for decades been taking into account these considerations and establishing, for example, light industries suitable for female labour in the belts of predominantly heavy industries. In our own country we shall have to look for a more diversified pattern of occupation for both labouring and middle class women.
- 13. Fostering of garments industry for employment relief of middle class women.—In view of the increasing consumption of ready-made garments and their large imports from outside the state, and in view of the low income of the lower middle class educated familes we recommend that the Government should take steps to set up a co-operative institution, on the lines reported to have been introduced in New Delhi, to
 - (a) organise a garments industry for the tailoring of standard garments by middle class ladies;
 - (b) arrange for continuous study of the fashions to avoid the manufacture of unsaleable designs;
 - (c) supply sewing machines to the participants in the scheme on loan or on hire-purchase system;
 - (d) arrange the bulk purchase of cut pieces and supply them to the participants in the scheme; and
 - (e) arrange the marketing of the goods.

We note in this connection that the khadi and village industries organisations have already made considerable progress in manufacturing ready-made garments for men, women and children in the tailoring establishments attached to their sales emporia. This, however, does not satisfy the objective we are formulating here. We, therefore, recommend the measure noted above for the relief of middle class families of teachers, clerks, office assistants and others in the low-income category by a system which would enable them to work in their homes in spare time.

- 14. Contract system of work.—The contract system of giving out work to families to be done at home by private employers or co-operative societies is expected to be a useful method of providing employment for women. It has got to be encouraged in every way subject to certain safeguards. For these reasons and on account of the facts
 - (a) that the system of home work given out to women on contract and piece system means an immense relief to women, and specially to women who observe purdah and have to look after children at home;
 - (b) but that the system is liable to exploitation by the employers;
 - (c) and that in the European countries it was exactly this system of work given out with its abuses which brought into existence the Trade Board legislation wherever the scattered home workers were unable to organise themselves in Trade Unions to improve their bargaining power for wage fixation;

we recommend

that the Government should conduct an enquiry into these urban occupations tactfully and sympathetically both (a) with a view to assess their employment values as well as (b) for protecting the women from being exploited.

We draw the attention of the Government to the qualifying terms "tactfully" and "sympathetically" which have been inserted to indicate that any aggressive policy or approach may drive the occupations out of the home into the workshop and defeat the object of the measure proposed.

- 15. Emptoyment in embroidery and other decorative hand-work.—With increase in per capita income and consumer expenditure, the demand for artistic goods would increase. We find a variety of embroidery work, knitted textiles, hand printed and painted cotton, silk and mixed fabrics being consumed in increasing quantities. In the urban areas of U.P., the Punjab and Kashmir, a large number of families are engaged in occupations of making them in their homes. We recommend an examination of the possibilities of introducing them for the employment of urban women.
- 16. Industries using plastics as raw materials.—The growing use of plastics as one of the major raw materials all over the world, its existing and prospective production in India and the versatility of its uses makes it eminently suitable for use in cottage and family industries. We recommend an examination of its potentialities for the employment of women.
- 17. Manufacture of toys and articles of home decoration.—One of the items for which there is a continuous increase in demand with the growth of consumer income and expenditure is made up of children's toys and articles for the decoration of homes. Such of these industries as would be found suitable for home occupation may be introduced in urban areas for the employment of women provided adequate marketing facilities are set up.

18. The need of careful market studies and consumer preference appraisals concerning these industries.—We recommend that whatever industry is selected for relief employment of women, it has got to be remembered that the practitioners would be people of limited means and eannot afford to bear the risks of market fluctuations or the piling up of stock. In ease of work being given out to them on contract terms, they are freed from these risks. But if they are self-employed out and out, very great caution would be necessary to give them guidance only for such occupations whose products are continuously absorbed by the market. It may even be necessary for this category of industries to be placed under such institutional patronage as would be able to serve as a shock absorber for fluctuations in demand and can even afford to write-off stagnating stock or clear them at concessional prices now and then. This last scheme should not be impossible if a reserve fund is built up out of a small levy on the prices which can be realised when the sales are brisk and the market unsaturated.

Finally, as already noted in connection with garments, a ceaseless study and foreeasting of consumer preferences and a system of appropriate consumer suggestion and guidance would also be necessary as necessary marketing strategy.



CHAPTER XV

Employment of the people of the State in Industrial and Business Enterprises.

1. Employment of the people from this State in business enterprises in salaried posts.—We have noted that the low figure of industrial employment in general in this State is due to want of the proliferation from the large basic industries. In this chapter it is proposed to consider the much narrower problem of the representation and employment of the people of this State in the intermediate and higher categories of salaried posts in the business enterprises working in Bihar.

The Unemployment Committe appointed by the Government of Bihar and Orissa examined the problem in the middle of the thirties and came to the conclusion that, among other things, the youngmen from the province were averse to taking up jobs at the bottom of even a promising ladder. The situation has completely changed, and matriculates are now quite willing to take up even the work of a mazdoor or khalasi, and persons with university degrees are willing to make a modest start which we consider to be a healthy sign.

- 2. Employment of Biharis in the mines and factories.—An attempt was made in 1954 to study the position of the employment of the local people in the industries, mines and factories of the State employing 500 or more workers. It was a postal survey and the response was not very satisfactory. Moreover, the information furnished were inadequate in many particulars, making it impossible to draw any conclusion from them. Even so, it was clear that people of the State were inadequately represented in them.
- 3. RATIONALE AND JUSTIFICATION OF THE RECOMMENDATION FOR AN APPROPRIATE REPRESENTATION OF PERSONS FROM BIHAR IN THE SALARIED EMPLOYMENT IN THE BUSINESS ENTERPRISES.
- 3.1. Growth of economy leads to mobility and demographic integration in large countries .-We wish to point out that the Committee does not intend to take a narrow and parochial view of the subject. The growth of the economy of any country, and specially one with a large area like India, the Soviet Union, the U.S.A., Brazil, etc., necessarily leads to a greater mobility of the economically active people and also of their families. Different countries have shown different trends in this respect. In the geographically smaller countries like Germany, France, etc., the industrial population is more immobile because it has already settled in the mining and industrial regions over decades. But in the larger countries there is a greater mobility and mix up in the population in the early stages of industrialisation as the workers of different categories are drawn from different regions. For example, the large industrial townships of the U.S.A. are like epitomes of the whole of Europe. Similarly the large industrial belt from Diamond Harbour right up to Asansol is an epitome of the whole of India. Within Bihar, Jamshedpur itself is more a representative of India than of Bihar alone, and more of such localities are in the process of growth. Thus the process of economic growth necessarily leads to a demographic integration or the building up of a variegated demographic pattern in a country. Moreover, under the Constitution there is a common citizenship without any local discrimination.
- 3.2. The employment of the local population of the regions which have lagged in education and other intitial facilities deserves special consideration just like infant industries and depressed areas.—For all these reasons we are averse to any sort of discrimination in any state or any sector of the economy. The reasons for examining the positions of the people of Bihar as employees in the business enterprises are purely practical, empirical and expected to hold good for a short period only to enable our youngmen

to overcome certain adventitious and inherited hurdles like these affecting newly established industries. As the head offices of most of the large industrial establishments are located outside this State and those at the top of the managerial hierarchy are drawn from other states, there would be, and is, a natural inclination among them to take as probationers, apprentices or persons for responsible posts those whom they know. We have noted in another chapter how contracting and engineering firms, with head-quarters located outside this State, bring even the lower grade personnel like clerks and chaprasis from outside. Such a situation in which the entire higher rung of the hierarchy is not even in social contact with the youngmen of the State calls for sympathetic remedial measures as it works as a self-perpetuating trend.

We believe that the solution of the problem is not very far removed from the compromise principle which the National Development Council and the Planning Commission have been following in the locational distribution of industries. They are aiming at a well distributed regional development even if the purely economic factors clearly indicate a different type of concentration of industries. One of the powerful arguments for following the compromise principle is that the lower categories of wage work must be created near centres of population so as to secure a better distribution of employment because this category cannot bear the cost of railway journey over very long distance. Similarly, we consider it to be in national interest that every state in the country makes its due contribution to the building up of the managerial, supervisory and technical cadre for managing the working and growth of our national economy and that no artificial factors are allowed to stand in its way. Moreover, we believe that it is in the interest of the industries themselves that they take in their employment local people, who have their roots in the State, and, therefore, a vital state in the prosperity of the concern. They serve as a stabilising factor and cementing force between the enterprise and the people of the locality in which it is situated.

We, therefore, recommend that a larger number of persons from this State should be recruited as probationers and apprentices or in other technical and supervisory and managerial posts in the enterprises located in the State both in the private and in in the public sector. We further add that this principle should apply to the initial recruitment, but once an appointment has been made, further promotion should be on the basis of pure merit and performance.

- 3.3. Functions of Liaison Officer.—We repeat here, for these reasons, our recommendations in Chapter XIII for the appointment of a Liaison Officer of high status for maintaining contact with all the large enterprises in the private and the public sector for securing an adequate representation of our youngmen in the industrial services.
- 3.4. State and personnel department of business enterprise.—In this connection, we welcome the recent decision of the State Government to place the services of a high ranking officer at the disposal of the biggest private enterprise in the State with adequate authority and status to look after the personnel matters of the Company. There have been frequent reference in the Legislature to the low percentage of Biharis in the employment of certain public enterprises in the State. Though the announcement of Shri Manubhai Shah, Minister for Industries, that in all public enterprises posts carrying basic wages up to Rs. 500 per month should be filled only by local people may go a long way to alleviate the fears in this regard, we would strongly recommend that in order to ensure that the policy is implemented, the State Government do try to place a high ranking officer incharge of the personnel division of such enterprises in the State. This will be a most practical step to take to safeguard the interests of our youngmen and women. We do not wish to east any reflection on people from other states in making this recommendation; some of them have done yeomen's service to the cause of Biharis. But it is only a question of doing

something which would generate confidence in the minds of Biharis that their future is being taken care of.

- 3.5. Some positive suggestions.—Certain other positive steps are necessary if the Biharis are to be given their due place in the industries. We would like to indicate them in precise terms.
 - (i) Recruitment to unskilled jobs like those of mazdoors, khalasies, peons and chaprasis as well as to clerical jobs should be made entirely from the local people.
 - (ii) Probationers and apprentices for training for which the minimum qualification may be matriculate or intermediate, or degree in Arts or Science should be confined only to the people of the State. Our Schools and Colleges are turning out increasing number of boys and girls with these qualifications, and there is no reason why any employer, whether in the public or private scetor, should seek to recruit persons from outside the State with these qualifications.
 - (iii) The same principle should apply to semi-skilled and skilled posts for which local men can be trained without much difficulty.
 - (iv) For higher supervisory and technical posts for which a technical degree, not merely an Arts or Science degree, is required, men within the requisite qualifications, if available in the State, should be taken and trained. But if this is not possible without detriment to efficiency, men from other states may also be taken with reservations of not less than 60 per cent for the people of the State to be trained in due course.

In short, it should be the constant endeavour of every employer, whether it is the State or a private entrepreneur, to recruit local people to the furthest extent possible so that the people of the State may develop a sense of belonging to the enterprise.

- 3.6. No formal definition of local people is called for.—We have deliberately avoided to attempt a definition of 'local people' or 'people of the State'. Several definitions have been attempted in the past—all of which have led to unseeming controversies. Our belief is that by the application of common place standards and principles, which admit of no controversy, every employer should be able to distinguish clearly between those who are indigenous residents of the State, sharing in its property or misery, or who are mere birds of passage.
- 3.7. Regular review of representation of local people in industry.—No legal provision is suggested to achieve the objective in view, but we would strongly advocate that the question of securing to the people of the State adequate representation in industry and business should be continuously reviewed by a High Power Committee at the Cabinet level, if possible, and Government should try to secure, in this regard, the willing co-operation of the employers through discussion and persuasion.

CHAPTER XVI

A Scheme for a Permanent Advisory or Consultative Committee for Planning Manpower Utilisation and Employment.

- 1. The necessity of a permanent organisation to keep continuous watch on employment trends and to advise Government on comprehensive employment planning for the entire employable population.—The need of an organisation to assess the employment value of all developmental projects and their execution was expressed in the very first meeting of the Committee. In this meeting on the 17th January, 1954, the Chairman (Dr. A. N. Sinha) drew the attention of the members to paragraph 11 of the preliminary note of the Secretary and asked for definite views. This paragraph runs thus:
 - "Different Departments of Government are taking action on the suggestions made by the Planning Commission (about various measures of development particularly for coping with unemployment). There is a clear need for co-ordination so that it may be possible to review, from time to time, the effects of the execution of different projects on the volume of employment, and to make adjustments, wherever necessary. It may be desirable to have a research assistant who could continuously watch and analyse the progress reports received on the execution of various projects with a view to find out how far the employment opportunities have been increased in different sectors with the progress of each project."

The preliminary note of the Secretary further brought out the special features of the unemployment problem in India as due basically to the underdeveloped economy of the country and the unrestrained growth of population on which cyclical and frictional phases of unemployment were superimposed now and then. It was, therefore, fundamentally a problem of creating opportunities and avenues for gainful ployment rather than of merely placing men in jobs or providing certain measures of social security. It was for these reasons that the Committee proceeded to set up the Sub-Committees for the survey of all the different aspects of the entire economy. And since the main Committee as well as the Sub-Committees and the office-bearers have so far been functioning as the co-ordinating body watching the employment aspects of the development schemes, rendering advice on all such measures on which they were consulted by Government or which the Committee considered on its own initiative that advice to the Government should be offered, the urgency of setting up such a co-ordinating body was not felt as an immediate problem. However, a scheme for such an organisation was being worked out so that when the labours of the Committee eame to a close, these co-ordinating and advisory functions eould be taken over by the proposed body. It is significent to note that more than four years back, the following remark was made in the note with which the seheme of the International Labour Organisation for expanding the scope of the employment services was placed before the Committee in June, 1956.

- ".....if we can give a concrete shape to it, we may give a lead even to the Government of India in this respect".
- 2. The Circular Note of the International Labour Organisation of 1956 on the "Role of the Employment Service in Relation to Unemployment in India".—This approach of the Committee received support from a communication received by the Committee from the Labour Department of the Government of Bihar forwarding a copy of a circular note emanating from the International Labour Organisation, New Delhi and forwarded to all the states through the Government of India in 1956. The subject matter of the note was the "Role of the Employment Service in Relation to

Unemployment in India". An interim reply was sent by the secretariat of the Committee in May, 1956 and the subject was discussed in the fourth meeting in August, 1956. This note of the International Labour Organisation pleaded for the expansion of the functions of the Employment Service beyond mere registration and placement or matching men and jobs. It gave illustrations from the expanding role of the Employment Services in other countries and urged the importance of research, diagnosis and of the setting up of a National Employment Information Programme for these purposes. The need for anticipating employment conditions in terms of occupations, industries and geographical areas for matching demand and supply in specific terms was visualised. The other aspect of anticipation and forecasting was in terms of the unemployment information programme. Job-analysis was pointed out to be necessary not only for right vocational guidance of the prospective entrants but also for the purpose of rationalising complex jobs to enable available men to be fitted into them. The questions of geographical mobility, of seasonal unemployment, of discriminatory hiring practices, of depressed areas and of excessive labour turn-over were to be covered. It was held that any effective Employment Market Information Service could be operated only on the basis of all such research and diagnosis. With regard to the specific problem of unemployment, the International Labour Organisation note advocated a permanent data collection programme and sample survey instead of complete enumeration. It will be noticed that this circular note emphasised the three main points, namely, the employment of the new entrants into the labour market, secondly, a permanent data collection programme, and finally, the urgency of framing employment policy as a comprehensive responsibility towards the entire labour force all of which were already being considered by our Committee.

- 3. Special importance and necessity of a total employment planning in an underdeveloped country.—The idea of planning the utilisation of human resources, i.e., manpower planning is basic and urgent one for the densely populated underdeveloped countries just as the emphasis is tilted on the utilisation of the natural resources in the sparsely populated countries rich in natural resources like Brazil, Canada, Australia or the Soviet Union. It is from this point of view that the Committee has analysed the situation in our State and made comprehensive recommendations for the employment of the residual manpower in the chapters dealing with intensive farming, mass employment, emigration to other states, etc. While the Committee was working along this line of thinking, the Central Government and the Planning Commission, too, had been evolving the same idea and objective of comprehensive manpower utilisation. Such a basic approach was growing up at international level also, and Western economists, statesmen, the United Nations Organisation and the International Labour Organisation have all come to realise the need of comprehensive man-power utilisation in all the backward or under developed countries of the World. We shall presently see how an appropriate methodology of investigation and technique of dealing with the subject have taken shape in India.
- 4. Constitutional implications of a comprehensive man-power planning.—While Articles 36 to 51 of the Indian Constitution containing the Directive Principles of State Policy are not enforceable by any court they are of immense importance as defining the very spirit of the Constitution. Article 39(a) lays down that

"The State shall, in particular, direct its policy towards securing-

(a) that the citizens, men and women equally, have the right to an adequate means of livelihood;"

Thus we find that the creation of employment and self-employment opportunities for securing an adequate means of livelihood for every citizen is one of the fundamental principles in the governance of the eountry as brought out in Article 37.

- 5. Gradual and Empirical Evolution of the Concepts, Methods and Technique of Man-power Planning of the Centre.
- 5.1. Gradual realisation of the necessity for man-power planning.—Although it took a long time for the Centre to feel out and evolve the concept of total man-powe planning and the methods and technique of employment and unemployment calculations, the objective of the utilisation of the human resources was formulated in the very instrument establishing the Planning Commission in March, 1950, which charged this body with the responsibility, inter alia, (1) to assess the human resources along with capital and natural resources, and (2) to plan their most effective utilisation. It was not, however, before the First Plan was half-way through that both serious thinking and appropriate action were initiated on these lines. By 1953, as we have examined elsewhere, the awareness of the problem of unemployment began to cause anxieties at the Centre also and frequent demands were placed before the Planning Commission for comprehensive man-power. In that year, an informal working group of man-power studies and technical training of the Planning Commission with representa tives of the Ministries of Education and of Labour and Employment and of the bodies like the Central Statistical Organisation and the Council of Scientific and Industrial Research was constituted. This body began with considering both the personnel requirement aspect of the plan schemes and the question of comprehensive employment. But it was the first problem which naturally secured the higher priority. Details of the personnel requirements were worked out by the River Valley Projects Technical Personnel Committee specifically for these projects. The Engineering Personnel Committee considered the personnel requirements from a more comprehensive point of view. These methods were further elaborated by the various steel projects and by the National Coal Development Corporation by working out the employment potentials of each separate project or enterprise. The Technical Personnel Training Committee, established in 1956 considered the problem even more broadly by covering the requirements of the private sector as well. All these functions were finally placed under the Scientific and Technical Man-power Division and the Perspective Planning Division. Throughout all these efforts, while the immediate objectives were limited, the processes of working out calculations of the employment potentials tended to lead those responsible for them to the realisation of the urgency of comprehensive man-power utilisation measures. In this way the processing of the monthly reports of the Regional Directorate of Resettlement and Employment on regional surpluses and deficits of technical and skilled personnel, the reports of the Programme Administration Advisers and of the Liaison Officers to the state government from the Planning Commission were bringing to the notice of the Centre the problem of employment in the states. One concrete result was the classification of the occupational titles with 300 categories in a flexible classificatory system into which new categories could be fitted. We are noting elsewhere that this work is not yet complete on a national scale and a National Dictionary of Occupations remains to be completed.
- 5.2. Development of concepts, methods and machinery for man-power utilisation.—
 It was out of these activities and other similar explorations that further development of the concepts, methods and machinery for man-power utilisation took shape. These were
 - (1) The assessment of overall unemployment which was split up into the examination of unemployment in the rural and the urban sectors separately as already examined in another chapter.
 - (2) The launching of the Employment Market Information Programme in response to the objective of a total man-power planning and on account of the lack of information and data not only on unemployment but also on employment.

- (3) The development of the technique of calculation of direct and indirect employment potentials of specific schemes of development simultaneously with the elaboration and improvement of the analytical tools and the setting up of appropriate machinery for the purpose.
- 5.3. The present machinery.—There is now at the top the Cabinet Committee of the Central Government on Man-power with a Directorate of Man-power to provide a secretariat for the Cabinet Committee, to maintain liaison with each Ministry for the implementation of the decisions of the Cabinet Committee and to keep in close touch with the Divisions of the Planning Commission dealing with man-power. A very important link in the machinery on man-power planning is provided by the nomination of a senior officer from each Central Ministry, whose functions create employment, to keep in touch with the Central Directorate of Man-power. In the Planning Commission itself the functions of man-power planning have been placed under the Scientific and Technical Man-power Division and the Perspective Planning Division. Finally, the old Central Employment Advisory Committee which was attached to the Central Headquarters of the National Employment Service and had been set up by the Government of India to advise the Central Ministry of Labour and Employment on matters relating to employment, unemployment and the creation of employment opportunities and the working of the Employment Exchanges, was abolished, and in its place a Central Committee on Employment has been set up in 1958. The Resolution of the Government of India setting up this Committee has been reproduced for reference in the Appendix to this report.

6. Man-power Planning and Information on Employment. The Need of Vocational Guidance.

- 6.1. Lack of data on employment and the Employment Market Information Programme.—Effective action against unemployment cannot be taken unless its extent and type are known. In this country, apart from the lack of data regarding the extent of unemployment there is a lack of data even about the volume of existing employment and of its accurate projection. It is expected now that as soon as the Employment Information Programme has become more comprehensive, this drawback would be removed to a considerable extent even if the self-employment sector is not covered fully.
- 6.2. Vocational guidance.—Similarly, the need for vocational guidance cannot be overemphasised. Our educated youth in general are unaware of the various job openings and training facilities, suited to their aptitude and interests, available in the country and, therefore, crowd the ranks of aspirants for clerical jobs. The Training and Employment Services Organisation Committee set up by the Government of India under the Chairmanship of Shri B. Shiva Rao, M. P. also considered this question and recommended the setting up of Counselling Programmes in Employment Exchanges.
- 6.3. The Employment Market Information Programme.—The Committee note with satisfaction that the State Government have already taken steps in these directions. As a part of an all-India Scheme, the National Employment Service in Bihar has started a programme for the collection of Employment Market Information on a continuing and regular basis. The first round of enquiry from the Public Sector has already been completed, and in the second round, the private sector in the three districts of Dhanbad, Singhbhum and Patna is also being covered. During the course of the remaining years of the Second Five-Year Plan, the private sector in the other districts of Bihar will be covered. Ad hoc and sample surveys, where necessary, are also contemplated in the scheme. The information collected from these enquiries, along with the available data relating to employment and unemployment from other sources are proposed to be analysed and studied on a continuing basis.

- 6.4. Agriculture and self-employing occupations to be included under Employment Market Information Programme.—The scheme, in its present form, however, suffers from one serious drawback, namely, that it does not extend to the agricultural sector and barely covers the self-employing occupations or independent workers. Even after the developmental schemes have generated a large volume of direct employment, the percentage of independent earners in the agricultural and non-agricultural sectors would continue to be many times greater. Evidently, therefore, the scope of the Employment Market Information scheme of the National Employment Service of the State will have to be widened so as to cover this sector of the working population in its studies. We, therefore, recommend that the work of the agricultural and rural unemployment survey so far being conducted under the auspices of the Committee should be continued, if necessary, with suitable modifications, as part of the Employment Market Information Scheme.
- 6.5. The schemes of Man-power Planning.—The Committee also note with satisfaction that, as a step towards total man-power planning, the State Government have introduced schemes for vocational guidance. The Education Department has started a scheme for giving vocational and educational guidance in schools. The scheme is still in its early stages and is in operation in only some of the Multi-purpose and Higher Secondary Schools of the State. Trained Counsellors have been appointed whose function is to guide boys into appropriate courses of study having regard to their interest, aptitude and capability. As a supplement to this service, the National Employment Service has started a scheme for vocational guidance in the Employment Exchanges in the Youth Employment and Adult Counselling Sections. The Youth Employment Service guides a young person entering the employment market into the choice of a gainful occupation having regard to the employment opportunities available and his interest and aptitude. The Adult Counselling Section deals with persons who are occupationally mal-adjusted or under-adjusted. So far, this scheme is only in operation at the Employment Exchange at Patna and during the Second Five-Year Plan it is proposed to be extended to three more Exchanges. A number of career pamphlets on different occupations have been distributed in schools and colleges. While the Committee welcomes these measures, they feel that the pace of the expansion of these schemes needs to be accelerated. विकासिक समन
- 6.6. National Dictionary of Occupations.—We may also repeat here the importance of a National Dictionary of Occupations already mentioned in the preceding section.
 - 7. THE NEED OF A PERMANENT ADVISORY AND CONSULTATIVE COMMITTEE ON EMPLOYMENT AND MAN-POWER PLANNING.
- 7.1. Regular appraisal of employment situation is necessary.—In view of all these considerations the Committee thinks that there is need for a permanent advisory and consultative body to constantly watch and appraise the employment situation and recommend appropriate remedial measures from time to time. As already noted, in his opening speech in the first meeting of the Committee in 1954, the Chairman drew the attention of the members to the special feature of the unemployment problem in this country. He pointed out that it was not just a question of fluctuation in employment and the lapses of the employed into unemployment but went deeper into the problem of finding jobs or self-employment for a growing population. Now that the Bihar Unemployment Committee has come to the final stage of its labours and would no longer be available in the role of a standing advisory committee and co-ordinating body, it is desirable that the Government do set up a permanent organisation for discharging these functions. The case is further strengthened by the fact that the Government of India have set up a Central Committee on Employment to advise the Ministry of Labour and Employment on matters relating to employment, creation of employment opportunities and the working of the National Employment Service.

This Committee will study employment information and assess employment and unemployment trends both in urban and rural areas, and suggest measures for expanding employment opportunities. The Committee consists of representatives of different states, members of Parliament, economists and representatives of employers and workers. The Director of National Employment Service, Bihar, has been nominated as the representative of the State Government on this Committee.

7.2. The State Committee to have enlarged functions than the Central Committee.—
Our Committee considers that a State counterpart of the Central Committee on Employment with slightly enlarged functions than those assigned to the Central Committee should be set up. We are recommending an enlargement of the functions because the State Government have not got the advantages of the Centre of the large number of advisory, research and co-ordinating bodies and may not afford the cost of setting them up. Our recommendation, therefore, aims at mobilising the talents in the Universities and in public life without creating a financial burden on the State.

The functions proposed for the Committee are explained in sections 8 and 11 below.

- 7.3. The present Employment Advisory Committee.—We have, however, in our State a number of special function Committees without an adequate co-ordination of their activities. In this way we had a Regional Employment Advisory Committee when the Employment Service was under the Government of India. With the transfer of the organisation to the State Government, a fresh committee has been constituted called the Bihar State Employment Advisory Committee. It is a tripartite committee consisting of members of government and representatives of employers and workers. Its function is to advise the National Employment Service on matters relating to the working of the National Employment Service. For studying the needs of trained personnel in industry and adjusting the training programmes, another committee has been suggested by the Government of India. A Technical Committee on Employment Market Information to advise the Employment Service in the collection of Employment Market Information and to appraise its results has also been set up by the Government of Bihar. For deployment of surplus persons from development projects in the public and private sectors another co-ordinating committee has been constituted. There is a separate Man-power Directorate attached to the office of the Development Commissioner with which also a high-powered committee is attached. The State Government (Labour Department) have in view the setting of another committee to deal with the problem of employment of local people in industrial establishments in Bihar. All these various committees and co-ordinating bodies (six in number) are intended for the utilisation of the available man-power in the proper manner and absorption of unemployed persons in employment and the functions of each tend to overlap those of the others. We feel that all these Committees should now be replaced by one high-power Committee to be known as the Bihar State Committee on Employment with a flexible organisation for functioning through specialised Sub-Committees, which will shape all policies in the entire field of employment and unemployment. This Committee should be adequately broad-based and representative with a complement of about 30 members just like the Central Committee on Employment. This State Committee should also have the power to constitute Sub-Committees or Working Groups which should be small enough (say 8 members) to be able to meet often and study specialised subjects and make their recommendations to the Main Committee which would finally consider and shape their proposals for recommendation I to Government.
- 8. The functions of the proposed Bihar State Committee on Employment.—It is recommended that this proposed Bihar State Committee on Employment should be entrusted with the functions enumerated in Section 11 below. The Committee will have both

advisory and consultative functions. An advisory committee may tender an advice on its own initiative also and thus originate a scheme whereas a consultative committee takes up any problem only when consulted.

- 9. The proposed permanent Bihar State Committee on Employment will require a Secretariat.—This body will need a small but efficient secretariat unit which would be more like a research team than a mere administrative office. In this connection, the Committee brings to the notice of the Government that a number of men in the office of the Committee have received a very good training and mental orientation for the specialised kind of work on the collection, handling and analysis of data and the application of theories and principles in connection with the economics of employment. The training which they have received and the experience acquired by them would be useful for the body which is recommended to be set up.
- 10. The need of a suitable library for the Labour Department.—The Committee thinks that the work of the Labour Department is now sufficiently specialised to necessitate the building up of a suitable specialised library of books, journals and clippings from newspapers. In view of the high costs of books and journals, the Committee expresses its view that, except for such books as are needed for daily reference and routine work by each sub-department, it would be more desirable if one well-stocked central library is built up in the Labour Department.
- 11. The specific recommendation for the Advisory and Consultative Committee.—We are now placing below our recommendation for the Advisory and Consultative Committee in the following terms.

In view of the facts that

- (a) the State is responsible not only for providing all appropriate conditions for securing the maximum efficiency and welfare of the wage-earning sector of the labour force;
- (b) but also for the efficiency and economy of the self-employed workers;
- (c) and futher, bacause in a guided economy the state is called upon to take appropriate steps for the productive employment of the entire labour force of the community;
- (d) and because in our under-developed economy with a large and growing labour force but with a scarcity of land and capital resources, the utilisation of the man-power is as important as the proper exploitation of the natural resources;
- (e) and because the State has to devise ways and methods for socially productive employment of a large labour force even outside the labour market by creating new employment opportunities apart from dealing with unemployment among those already employed in the organised industries;
- (f) and because we have adopted a system of guided and planned economic development to make up for the retarded growth in the past;
- (g) and also because frictional and transitional unemployment are inevitable features of even a healthy economic growth and necessitate continuous adjustments and re-arraying of the factors of production;
- (h) and finally since a number of different Departments of the Government are taking action according to the plans and directions of the Planning Commission, there is a clear need for co-ordination so that it may be possible to review, from time to time, the effects of the execution of different projects on the volume and distribution of employment and to make adjustments, wherever necessary;

the Bihar Unemployment Committee recommends to the Government that

- (i) the designation of the Department of Labour of the Government of Bihar be changed to that of the Department of Labour and Employment.
- (ii) a permanent advisory and consultative body, on the lines of the Central Committee on Employment, known as the Bihar State Committee on Employment consisting of non-official members, including representative of employers and workers, members of the Legislature and economists, and official members representing the developmental departments; the Central Bureau of Economics and Statistics and the Labour Department be set up to advise the Department of Labour and Employment on all matters relating to employment, creation of employment opportunities and the working of the National Employment Service.
- (iii) the coverage under Employment Market Information Programme of the National Employment Service should be extended so as to cover both the agricultural and non-agricultural sectors including self-employed persons.
- (iv) the programme of Vocational Guidance should be extended throughout the State.
- (v) all recruitments, both in the public and in the private sector, should be channelled through the National Employment Service Organisation.
- (vi) a separate cell for undertaking the secretariat work of the main Committee and its Sub-Committees should be set up.
- (vii) in view of very much wider responsibilities of the Department of Labour and Employment which we have tried to bring out throughout this report labour and employment economics should be included as one of the subjects, along with labour laws, for the Departmental examinations of the officers of this Department.

It is further recommended that the following functions be entrusted to the proposed Bihar State Committee on Employment—

- (i) to maintain continuously an estimate or account, from year to year, of the addition to the work or labour force and its structural set up according to the estimated increase in the population of the working age-group and the returns from the Universities, Examination Boards and training institutions;
- (ii) to examine continuously in co-operation with other Departments the existing and prospective scope for the development of large, medium and small industries and to advise Government on an adequate share for this State in the Centrally-administered public enterprises, on the scope for State enterprises and enterprises in the private sector;
- (iii) to examine in co-operation with other Department, research organisations and other bodies, the scope for new industries and handicrafts for self-employment in rural and urban areas, and specially the scope for employment opportunities in the agricultural and non-agricultural sectors in and around the newly growing industrial townships;
- (iv) to review employment information and assess employment and unemployment trends both urban and rural and suggest measures for the expansion of employment opportunities;

- (v) to consider and/or suggest special measures for the educated unemployed or other special classes of unemployed persons;
- (vi) to assess requirements of trained personnel and advise the Government on the need for augmenting or adjusting training programmes;
- (vii) to keep watch on the execution of employment providing projects in public and private sectors with a view to advising Government if any adjustments are called for;
- (viii) to advise Government on measures to be taken for the effective utilisation of available human resources including the deployment and re-employment of skilled personnel from a completed project to a new project;
- (ix) to advise Government on the development of the National Employment Service and the Vocational Guidance Programme;
- (x) to foster and keep a watch on the employment of the emigrants from this State and advise Government on any remedial measures if any handicaps are created; and
- (xi) in general to consider and advise on all measures necessary for securing employment of the people of this State in the public and the private sectors, in the Central Services and Government enterprises inside and outside this State.

M.S. RAO.

B. P. SINGH.

B. N. SINHA.

M. R. HODA.

S. N. PANDE.

R. B. LAL.

B. PRASAD.

B. N. SINGH.

B.R. MISRA.

M. JOHN.

IGNES KUJUR.

BRAJANANDAN PRASAD.

R. NARSINGH RAO.

BIR CHAND PATEL,

Vice Chairman.

G. SINHA,

Member-Additional Secretary.

B. D. PANDE.

हरिनन्दन ठाकूर।

SARAN SINGH.

S. DUTT.

R. S. MANDAL.

RAMANAND PANDAY.

D. RAM.

S. R. BOSE.

बसावन सिह।

चन्द्रशेखर सिंह।

गौरीशंकर डालमियां।

ध्वजा प्रसाद साह।

गजानन दास।

BINODANAND JHA,

Chairman.

R. S. PANDE,

Member-Secretary.

H. PRASAD,

Member-Joint Secretary.

R. PRASAD, Assistant Secretary.

Dated, Patna, the 21st April 1960.

ACKNOWLEDGMENT.

The Committee was fortunate in having as its first Chairman, late Dr. A. N. Sinha, the then Labour, Finance and Agriculture Minister. It fell to him to give a correct lead to the work of the Committee. All the organisational work of the Committee was also completed during his stewardship, and but for his farsighted vision and warm sympathies for the working class, it would not have been possible for the Committee to launch on its work in the big way in which it did. It was unfortunate that Providence took him away from us while the work of the Committee was still in its very initial stages.

- 2. At a very critical stage of the work of the Committee, we lost Shri Shyamnandan Sahay, M.P., who died prematurely in 1957. He had taken very great interest in formulating constructive proposals for opening out fresh avenues of employment for the educated men and women passing out of our schools and colleges. We also lost towards the fag end of the work of the Committee Shri S. M. Acquil, Deputy Minister of Labour, who died in March, 1960. Shri Acquil was of considerable assistance to the Committee.
- 3. The Committee is grateful to the Chairman and Members of the various Sub-Committees, who had to collect and process all the primary data relating to their sphere of work and who had to put in hard work in not only bringing out the salient features and intricacies of the problem of unemployment, in its various forms, but also suggest practical remedies. In this connection, we wish to mention the valuable contribution made by the late Shri Shyamnandan Sahay, Vice-Chancellor of the Bihar University, and Dr. Dukhan Ram, the present Vice-Chancellor of the Bihar University, and Dr. Balbhadra Prasad, Vice-Chancellor of the Patna University, Shri Brajanandan Prasad and Shri G. S. Dalmia and Dr. B.R. Mishra, who very willingly gave much of their time to the work of the Committee.
- 4. The Committee has also received very willing and active co-operation and assistance from all the departments of Government, particularly, from Shri H. N. Thakur, Secretary, Agriculture Department, Shri J. C. Mathur, Shri K. Abraham and Shri Saran Singh, successive Secretaries of the Education Department, Shri Haranandan Prasad, Deputy Secretary, Finance Department, Shri B. N. Sinha, Secretary, Industries Department, and Shri Ajit Mazoomdar and Shri R. S. Mandal, Director of Industries. We express our sincere thanks to them.
- 5. Apart from the work of the Industrial Unemployment Sub-Committee, of which he was the Secretary, Shri B. P. Singh, Secretary of the Labour Department had to devote much of his time to supervising the office work of the Committee. He took keen interest in the work of the Committee and gave all possible help in making its task easy and successful. Our thanks are due to him.
- 6. The Committee is grateful to Shri R. S. Pande for the valuable services rendered by him. He has continued to shoulder the responsibilities of the secretaryship of the Committee since its very inception. After he left the Labour Department in 1954, Shri Pande has been entrusted, during these six years, with several onerous assignments of exacting nature; first, as the Officer on Special Duty in connection with the States Reorganisation, then, as the Joint Development Commissioner, particularly in-charge of Community Development Work in its formative stages; and subsequently as the Director of Personnel, and, later, as the Agent of the Tata Iron and Steel Co., Ltd., at Jamshedpur, which post he is holding now. Even so, he has found it possible to give considerable attention, thought and labour to the work of the Committee, and has brought to bear on it his keen insight into matters affecting the industry and labour. His experience has been of great value to us in giving a content of practicability to the recommendations of the Committee.

- 7. The Committee wishes particularly to place on record its grateful appreciation of the most valuable contribution made by Shri Gorakhnath Sinha in preparing the report. We were extremely lucky in getting as Additional Secretary of the Committee, Shri Gorakhnath Sinha, an eminent scholar and economist of high repute, who has lent freshness to the report by his original thinking and masterly analysis of the various theories, facts and forces, in their relation to our economy, which have a direct or indirect bearing on employment. In spite of his other responsible assignments, both with the State Government, and later, as a Member of the Railway Rates Tribunal, Madras, Shri Sinha took pains to personally draft, read and re-read most of the important Chapters of the Report, which is a monument greatly of his tireless and patient work.
- 8. We are grateful to Shri S. R. Bose, who, even after his retirement from the post of the Director of Bureau of Economics and Statistics, Bihar, has throughout continued to give valuable assistance to the Committee in designing and directing the collection and compilation of complicated statistics relating to employment, and in their interpretation.
- 9. We also wish to mention the interest taken by Shri K. S. V. Raman, Chairman of the Bihar Public Service Commission, in the work of the Committee. He has given valuable advice to the Committee on some of the most controversial matters which came before it.
- 10. The gigantic work of the rural survey would not have been possible but for the co-operation of the teachers of Primary Schools in the selected villages and the respective Gram Panchayat Agencies, to all of whom we owe a debt of gratitude.
- 11. The Secretariat of the Committee has worked very hard and sincerely, under the guidance of Shri I. N. Thakur, Joint Labour Commissioner, and Shri Ramchandra Prasad, Assistant Secretary of the Committee, who deserve our thanks. Shri B. P. Ambastha's name, among the Assistants, deserves special mention. He has throughout handled the papers of the Committee very efficiently and has spared no pains in working under difficult conditions. All the assistants, stenographers, typists and the field staff who have helped us in our work also deserve our thanks. Our thanks are also due to the Universities and other bodies and institutions and private employers who responded generously to our questionnaire.

B. N. JHA,

Chairman, Bihar Unemployment Committee.



यद्यमेन तप्रते

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EMPLOYERS, EMPLOYEES & INDEPENDENT WORKERS

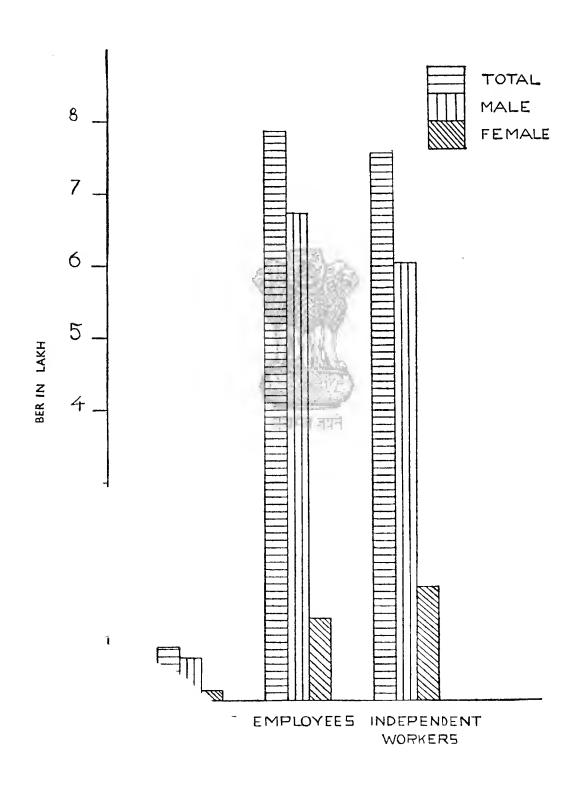


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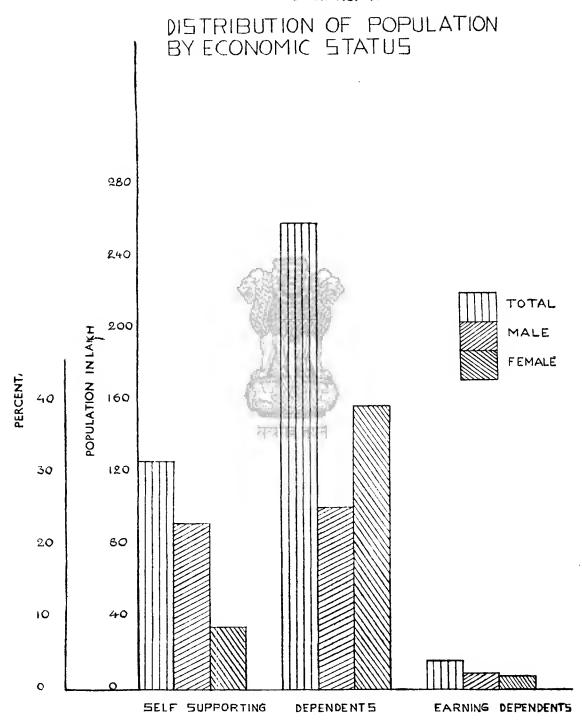


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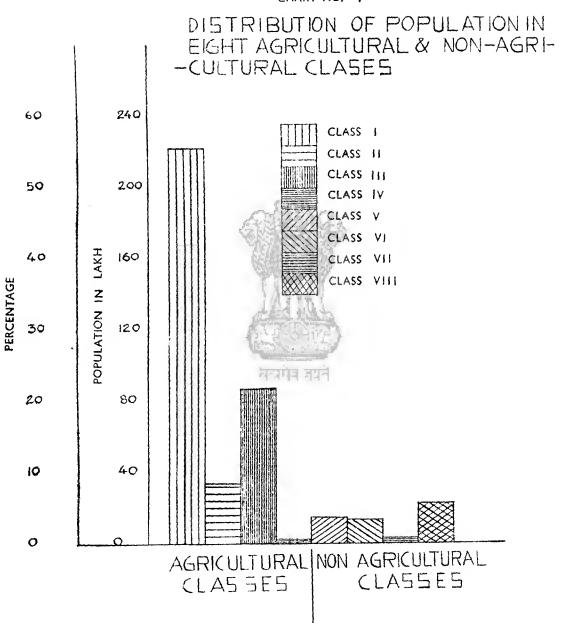
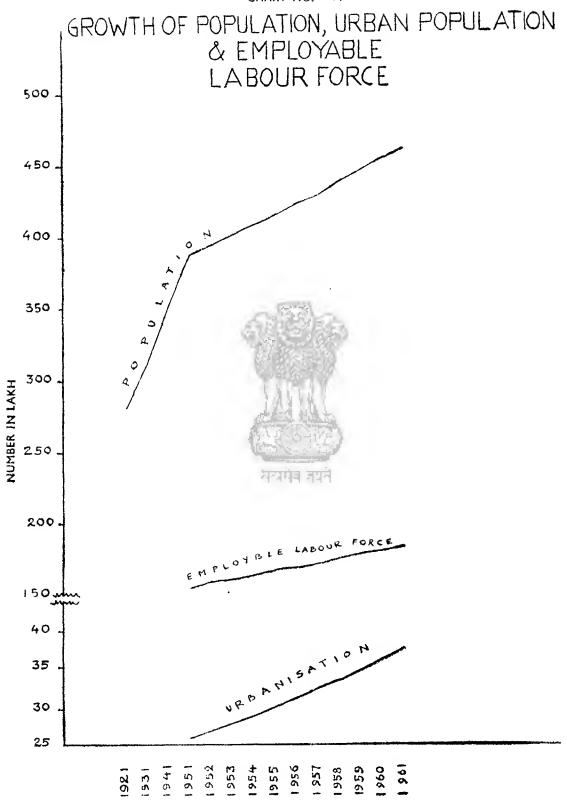
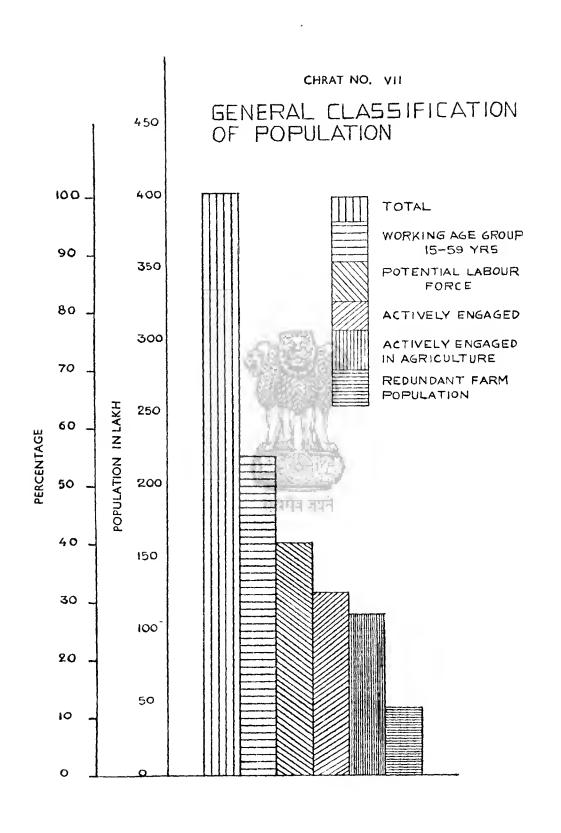


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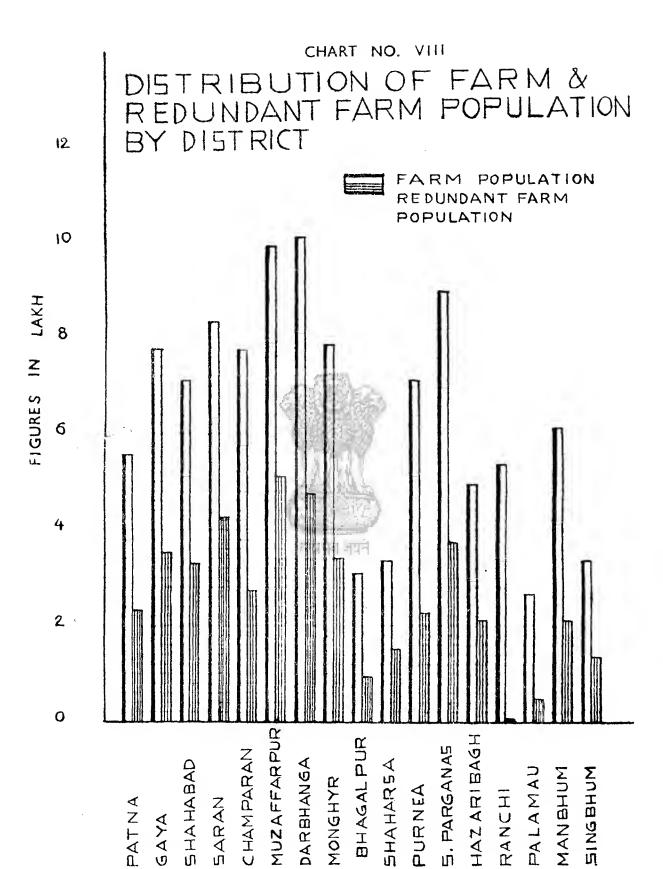


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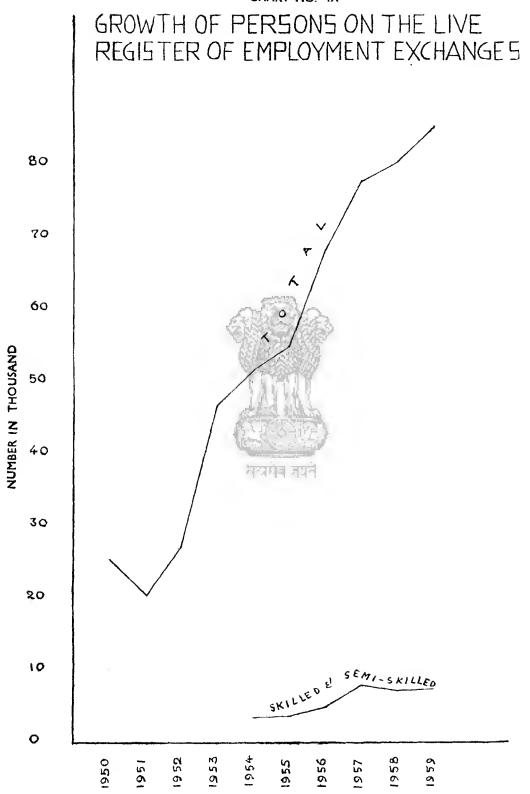


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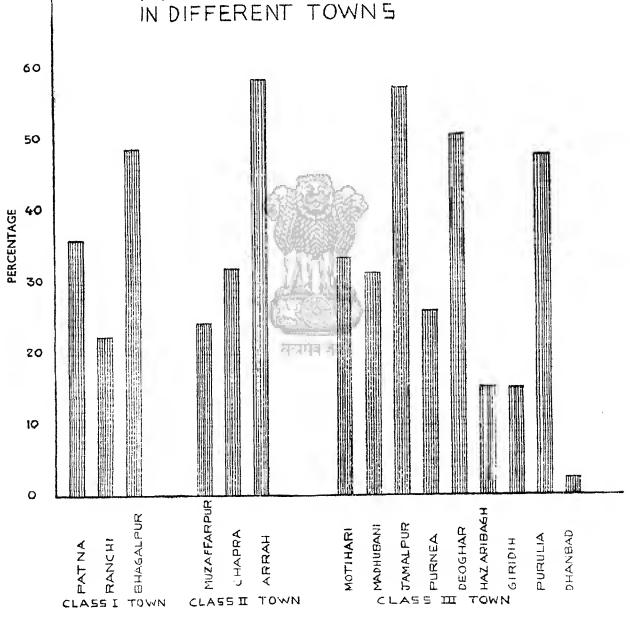
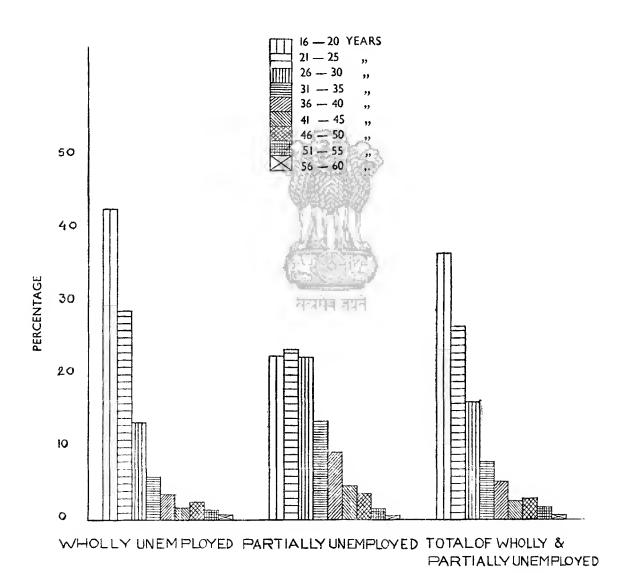
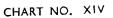


CHART NO. XI

DISTRIBUTION OF WHOLLY &
PARTIALLY UNEMPLOYED
PERSONS BY AGE





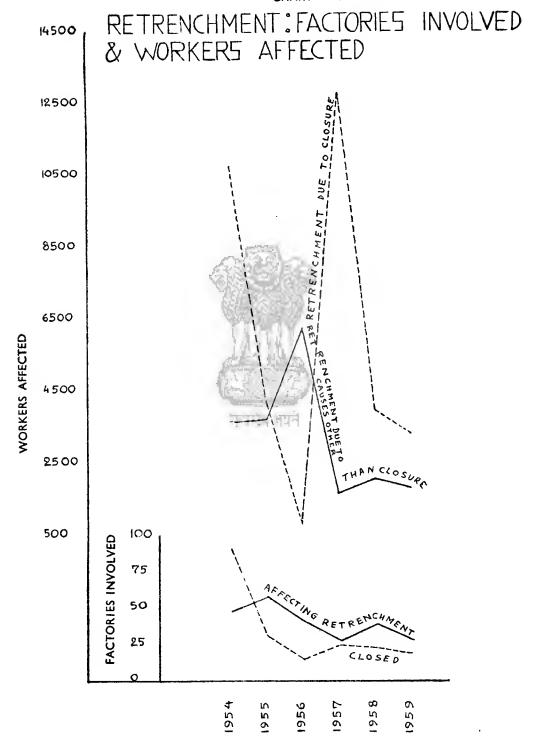
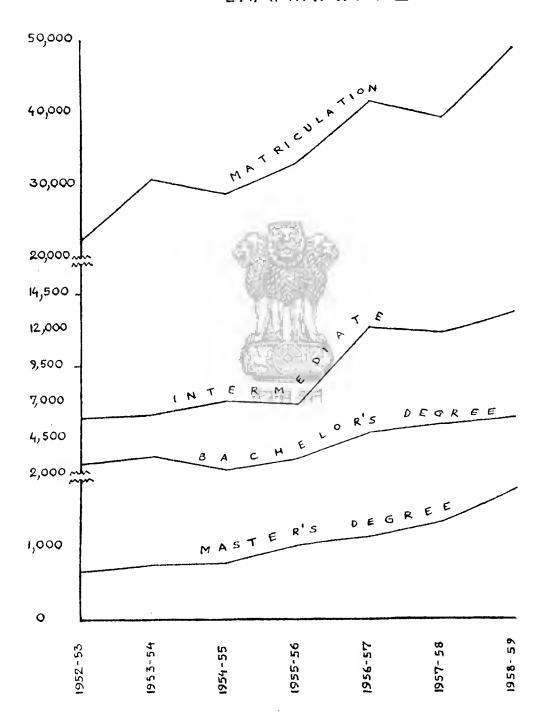
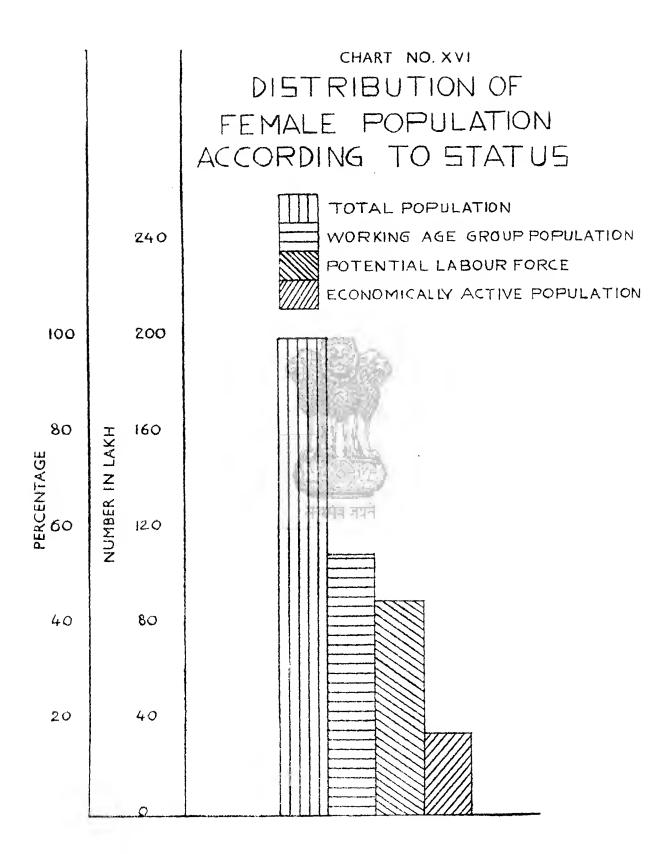


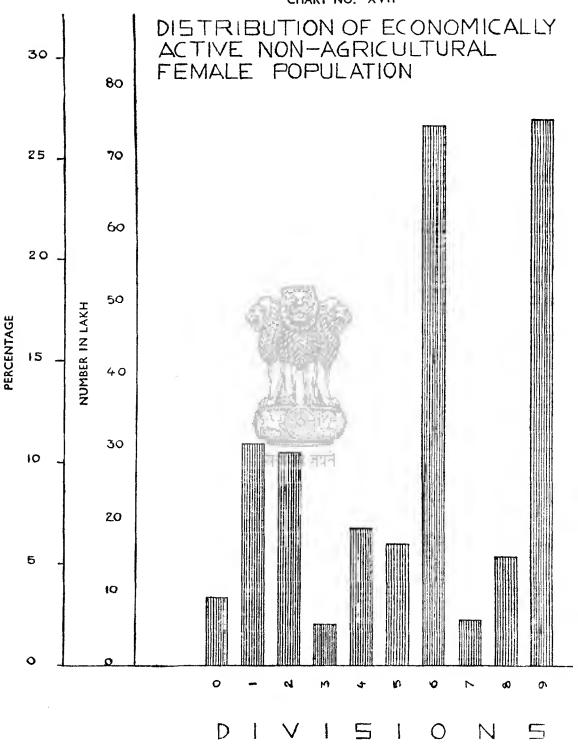
CHART NO. XV

NUMBER OF PASSES AT DIFFERENT EXAMINATIONS

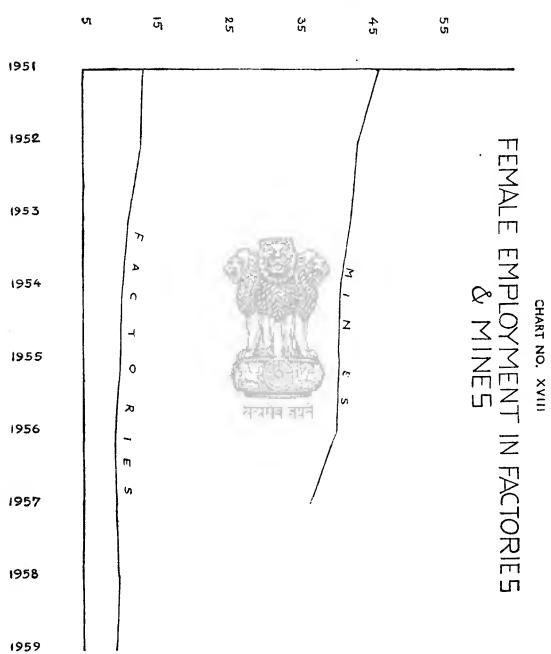












EMPLOYERS, EMPLOYEES & INDEPENDENT WORKERS

